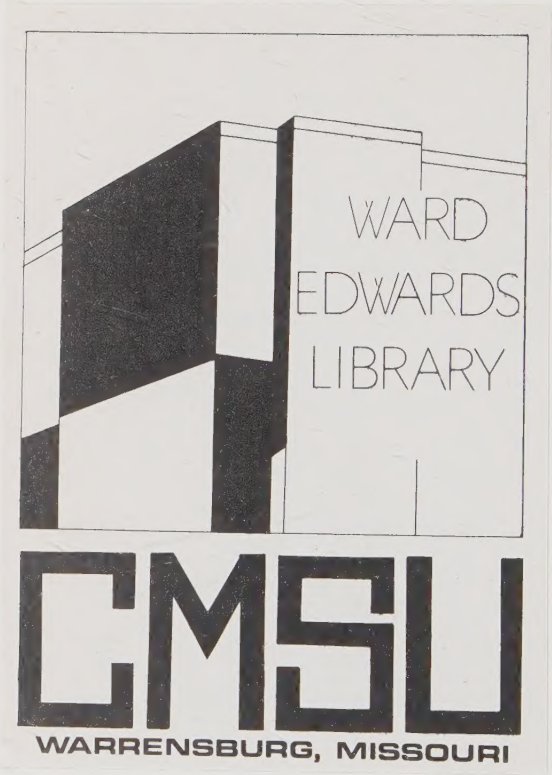
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A HISTORY OF THE PAST AND PRESENT STATE OF THE LABOURING POPULATION

The Development of Industrial Society Series

J. D. Tuckett

A History of the Past and Present STATE OF THE LABOURING POPULATION

Including the Progress of Agriculture, Manufactures and Commerce

Volume 1

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The Development of Industrial Society Series

This series comprises reprints of contemporary documents and commentaries on the social, political and economic upheavals in nineteenth-century England.

England, as the first industrial nation, was also the first country to experience the tremendous social and cultural impact consequent on the alienation of people in industrialized countries from their rural ancestry. The Industrial Revolution which had begun to intensify in the mid-eighteenth century, spread swiftly from England to Europe and America. Its effects have been far-reaching: the growth of cities with their urgent social and physical problems; greater social mobility; mass education; increasingly complex administration requirements in both local and central government; the growth of democracy and the development of new theories in economics; agricultural reform and the transformation of a way of life.

While it would be pretentious to claim for a series such as this an in-depth coverage of all these aspects of the new society, the works selected range in content from *The Hungry Forties* (1904), a collection of letters by ordinary working people describing their living conditions and the effects of mechanization on their day-to-day lives, to such analytical studies as Leone Levi's *History of British Commerce* (1880) and *Wages and Earnings of the Working Classes* (1885); M. T. Sadler's *The Law of Population* (1830); John Wade's radical documentation of government corruption, *The Extraordinary Black Book* (1831); C. Edward Lester's trenchant social investigation, *The Glory and Shame of England* (1866); and many other influential books and pamphlets.

The editor's intention has been to make available important contemporary accounts, studies and records, written or compiled by men and women of integrity and scholarship whose reactions to the growth of a new kind of society are valid touchstones for today's reader. Each title (and the particular edition used) has been chosen on a twofold basis (1) its intrinsic worth as a record or commentary, and (2) its contribution to the development of an industrial society. It is hoped that this collection will help to increase our understanding of a people and an epoch.

The Editor
Irish University Press

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A

HISTORY

OF THE

PAST AND PRESENT STATE

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INCLUDING

THE PROGRESS OF AGRICULTURE, MANUFACTURES,

AND COMMERCE,

SHEWING THE EXTREMES OF OPULENCE AND DESTITUTION

AMONG THE OPERATIVE CLASSES.

WITH

PRACTICAL MEANS FOR THEIR EMPLOYMENT

AND FUTURE PROSPERITY.

"THE KNOWLEDGE OF DISEASE IS HALF ITS CURE."

BY J. D. TUCKETT,

IN TWO VOLUMES.

VOL. I.

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PREFACE.

The original design of the present work is to endeavour to trace out the causes, as well as to apply a remedy for the plea of want of employment producing distress and vagrancy, which is alarmingly increasing, notwithstanding all the efforts of benevolence, in a variety of ways, to counteract the evil.

Political economy has, in some respects, become a new science, from the altered position of society, the system of commercial enterprise, with its alternate prosperity and stagnation producing fluctuation of employment, the increasing population being still a small portion in comparison with the rapid improvements in civilized life, which are daily extending in the various arts, sciences, agriculture, manufactures and commerce. Yet with all these inventions, and new markets for commercial enterprise, a large portion of the population are in a miserable state of destitution; and though this poverty is in a variety of cases produced by the improvidence of individuals, yet it must be apparent to an accurate observer, that pauperism and destitution, in many instances, are the

effects of accident, disease, and other causes, over which the sufferer has no controul. In treating on this subject, it will be imperative to give a sketch of society, as it was constituted in the early periods of our history. By this means we shall be able to deduce some conclusions as to the effects which fiscal regulations may have obtained upon our population. One remarkable feature among the labouring classes is that of Trades Unions, and combinations of workmen against their employers, producing misery and want of employment to themselves, by aspiring to establish a monopoly of mechanical skill, just on the same principle as our legislatures, through ignorance, employed restrictions in every branch of trade. In the concise history of the various gradations which have been effected in arts, manufactures, and commerce, it might be asserted that the labouring classes of England will bear comparison with those of any European country, either for energy, industry, or intelligence, though by the errors and abuses of the poor law system, the honest labourer is often degraded to a level with the idle, vicious, and profligate, who obtain, by imposture, the benefit of those laws which were originally designed for the protection and encouragement of industry, and the welfare of society. The important subjects treated on contain a compendium of history, and useful knowledge on public topics of great interest; supported and illustrated by facts, applicable to the existing wants of the community.

INTRODUCTION.

It is the province of all governments by even regulations of internal police, to call forth the greatest possible proportion of industry, as the surest and best means of producing national happiness and prosperity, The poor in England and indeed in northern climates, have many indispensable wants, not peculiar to southern countries, such as fuel, clothing, bedding, and shelter from cold; these are some of the physical causes which produce pauperism and wretchedness, and render poverty worse in a state of civilization, than in savage life. But there are many other causes which produce pauperism in a state of civilization, which it is physically impossible to avoid, and therefore a provision in some shape or other has been made among all nations, for persons unable to procure the means of subsistance; but in few instances, excepting in England, has any legal claim upon the rich, been established; but still the rich have voluntarily supported the indigent—and this appears to have continued from one generation to another. The causualties of human life often produce unavoidable poverty, for which there is no remedy; and it is to this condition that the apostolic injunctions are to be applied with a liberal hand: even in the Jewish dispensation they were to open their hand wide to their poor brethren, but to the idle, it is said, they shall suffer hunger, "and so shall thy poverty come as one that travelleth, step by step with steady progress, and thy want as an armed man."—The various occupations of the people very frequently reduce them to that burdensome state, where no physical cause operates. The labouring people are certainly exposed to many casualties from which the higher orders of society are shielded,—namely to damp and colds, contracted by working in wet weather, to a want of a regular change of raiment, to a deficiency of bed clothes, to cold rooms, and to miserable cottages; hurts, wounds, and other accidents peculiar to their situation, as out door labourers—It will be proved in the course of this work—that pauperism can generally be traced in a very large proportion of civilized society, to bad education, vicious and immoral habits the thoughtlessness of the inferior ranks of the people, chiefly contracted in populous cities and large towns. When parochial aid becomes necessary, there is seldom any discrimination, the virtuous

labourer, broken down by some temporary misfortune, is not restored by a judicious and adequate administration of occasional aid, to his former state of independant poverty, but is often forced into the workhouse, with the idle and the dissolute: his treatment and situation are seldom better than many of the dregs of society; who have been reduced to this unfortunate state by their vices and their crimes.

During the early period of our history, it does not appear that the poor ever were more contented, more temperate, or more economical than they are in modern times:—and there appears but two general methods of dealing with the evils which men bring upon themselves:—one is to save them from the consequences of their own misconduct which prompts them to fall into simular evils to those they have experienced, and the other is to allow such as will walk in no other way, to learn by experience, that, "the way of transgressors is hard." In the present state of mankind, (says Bishop Buller), all we enjoy, and a great part of what we suffer, are put into own power, for pleasure and pain are the consequences of our actions, and we are endued by the author of our nature with capabilities of foreseeing their effects. The evils which pauperism entail upon the commmunity are so great, that it becomes the duty of reflecting men to inquire whether these evils are accidental, and such as can be remedied, or whether they are the necessary consequence of compulsory relief. One of the principal besetting sins of human nature is indolence, this indolence whether mental or corporeal requires a stimulus to action, and this stimulus is necessary to produce this necessity:—the earth was created to require cultivation, the fire was hidden in the flint; the metal embowelled in the mine; the coal buried in the earth; and the bread was only to be eaten in the sweat of the face. A Lord Chancellor being asked, "What will make a good Lawyer," replied "great talents and poverty." Take from the Student the stimulus of necessity, give him present wealth, and future expectations, and you cause him to lay aside that anxious diligence, without which, valuable knowledge cannot be acquired. Tell the millions of young, or middle aged, that when they are in need, or old age, notwithstanding all their vices and extravagances, drunkenness, and ill habits,—their wants shall be supplied; and you remove the stimulus. You prevent him from providing for future contingencies, when he might by frugality, industry and temperate habits, in a great measure avert the evils of old age. The Scripture says "go to the Ant thou Sluggard, consider her ways and be wise, which having no guide, overseer, or ruler, provideth her meat in the summer, and gathereth her food in the harvest."

In a country so prolific and abounding with the source of human industry —that there should exist, a state of things, such as we perceive by the observation of every day's experience, is a parodox as singular from the effect it produces, as it is contrary to the result which naturally might have been expected. The human character amongst the lower orders of

society, as well as in those in the higher ranks of life, is so greatly influenced by early habits, that whatever tends to debase the labouring population in their own eyes, generally operates injuriously with respect to the interest of the community. There is no subject connected with political economy either so difficult to understand, or so important to the nation a large, as the proper management of that branch of internal police, which applies to the labour, shelter, food, and clothing of the poor. There have been during the last century, a great number of individuals, of the most extensive abilities, who have studied, and have written on this subject, bu amongst whom a great diversity of opinion has existed on this important point. These have generally agreed in one particular, namely, in the bad management and the heavy burdens of the poor, but how much would many of these be astonished, if they existed in the present times, to see the increased evils of pauperism. A degree of poverty appears to be the allotted condition of man, the testimony of sacred writ, and the experience of all ages, clearly prove the assertion, It is pauperised indigence, and not poverty which is the bane that affects society, and produces want. misery, and distress.

This is the state of every one who is destitute of the means of subsistance, and unable to labour, to procure it to the extent nature requires; namely for himself and those dependant on him for support. The natural source of subsistance, is the labour of the individual, while that remains with him he is denominated *poor*, when he fails in whole, or in part, he becomes *indigent*. Poverty is that state and condition of society, where there is no surplus labour in store, and where consequently no property but what is immediately derived from labour, can be procured. The constant exercise of industry, in the various occupations of life, is indispensable—and it may be stated, the inheritance of all those who must labour for subsistance—Poverty is therefore a very necessary and indispensable ingredient, in the constitution of society, without which nations, and the community could not exist in a state of civilization.—It is the lot of man, since the fall, for it is said, "In the sweat of thy face shalt thou eat bread, thorns and thistles shall the land bring forth unto thee." Labour therefore is the only source of wealth, and without the stimulus of poverty, there would be no labour, and without labour there could be no riches, no refinement, no comfort, and no benefit to those who may be possessed of wealth, inasmuch as without a large proportion of poverty, surplus labour could never be rendered productive, in procuring the conveniences or luxuries of life.

It appears to be a popular error, which has been propagated from writer, to writer, and from talker, to talker, that the poor of this country are degraded more than the poor of any country in the world: but let us ask the travellers from foreign countries, where they found the most misery and medicity; or whether they found the workpeople of any country, more

independant than those of England. They are dutiful and respectful, but not servile. they have not the coarseness of the American *helps*, nor the suppleness of an Italian; but domestic servants, and operatives generally know their duties, and fulfil them. By whom are the mean, and laborious offices of life chiefly performed? By those who though born in low stations, discharge these menial duties effectually. It is certainly one alleviating circumstance in the mass of vagrancy, which overflows this country from abroad, that the spectacle of dress, comfort, and manners it presents, has no tendency to render either Englishmen, or Englishwomen, more dissatisfied with the community to which they belong.—Our labourers long complained of the distressing competition of Irish emigrants, and lately, till the evil was checked by the metropolitan police, they were threatened with new rivals from the plains of Italy, the Tyrol and Hartz mountains. If we would accurately compare the state of England with other countries; we have little doubt but we should find, that our poor, even before the late regulations, were maintained in a less expensive way to the community, and also in modes less tending to degrade, and demoralize them, than in any other Kingdom. The country next in intelligence, and freedom, does not offer any enviable example.– In Paris it appears that one third of the inhabitants die in poor houses and hospitals, and that of 25,000 births, 10,000 are illegitimate,and of the illegitimate births, one half are foundlings. The workmen of France possess a great advantage in the cheapness of food, but in dress, diet, and cottage comfort, their condition is inferior, to that of English workmen in ordinary times. The artizans of Lyons, whose industry, was in unusual demand when visited by Dr. Bowring, are described by him as living well, but their abodes strongly reminded him of the wynds of Glasgow, by their crowded and unventilated abodes, simular to those of the weavers: and in personal appearance they were filthy, emaciated, and diminutive. The artizans of Altare, are fully as improvident as the most careless of our own workpeople: they live from hand to mouth, the least idleness, or want of work at all prolonged, plunges them into a state of profound misery;–they feed themselves irregularly.—Their houses are dirty, which contributes to render their physical state worse than that of the English workpeople.—In Belgian (the report states) there are no poor laws to encourage dissolute habits; the poor have nothing to depend upon but their own frugality, exertions, and forecast, to keep them from immediate want, and positive starvation. Yet with this stimulus, we are told, that coarse bread and vegetables, soup maigre, and dirty water, called coffee, are, the usual diet of the poor labouring people. The lodgings of these poor miserable peasants, are as comfortless and destitute, as their provisions are scanty and coarse, being usually a bundle of straw, so as to vertify the old adage of keeping hard lying in good humour, with hard living.—In Austria where the hours of labour are cruelly long, the working classes, and particularly the weavers eat but very little meat: their meals consist chiefly

of roasted potatoes, cheese, coffee, and American corn. The towns and villages of Sicily, swarm with beggars; the misery and consequent destitution of the poorer classes, are almost incredible; they live chiefly on lupines, a few chesnuts, and about two ounces of bread ℔ day; and their drink, is weak wine, for which they pay 1d., ℔ quart. The Peasants are dressed in Sheep-skins, in the interior of the country. The diet of the French, is bread and fruit for breakfast; bread and an onion for dinner; and for supper, it is bread, chesnuts, and onions, or grapes in the southern provinces;—sometimes a pound of meat is boiled with the onions, as a rare dish:—very little is spent in clothing. The Peasants of Italy, sleep on the bare ground, others in the casule, or under their temporary huts made with cones, which grow luxuriently. Their diet is Polenta, or Indian corn, flour boiled with water and salt, made into a sort of pudding, with the addition of skimmed milk, or skimmed milk chesse. The natives of the Abruzzi, were often attacked by fever, their appearance especially of the women, is frightful from poverty, dirt, and disease; (Travels in Italy.) We enquired, says the intelligent narrator, what would become of these poor wretches, as they returned from the harvest, the reply was, we give them a piece of bread, and send them away. But where do they go? they return to the mountains, some of them die on the road, and if the remainder reach home, they are exhausted by illness and fatigue; to recommence the attempt next year. These poor people walk 50 or 60 miles, and back again, to work the harvest in the pestilental flats of the Morenna. In the time of the Romans, this country was cultivated by slaves, who were considered not so good or valuable as cattle; the owners forced on their work by beating, mutilating, and putting them to death, but at the introduction of Christianity, these became serfs, attached to the land.

In the letters from the north of Italy, the writer describes the following scene of misery, which he states as one out of a thousand. "A few days ago, I saw a poor infant lying under a sack in convulsions of an ague fit, and the next morning meeting with another child whom I knew to be his brother, I asked him, how does your Brother do? to which he answered: which brother Sir; your brother that had the fever? there are five of us with the fever sir. Where do you sleep? In an empty stable sir. Where are your mother and father? Our mother is dead, and our father begs, or does such little chance jobs as offer at the hotel. And what do you? I get up the trees here and pick vine leaves for the waiters, to stop the decanters with, and they give us our ponade; (that is bread boiled in water, with an infusion of oil.)—In Hungary, Denmark, Sweden, Norway and Switzerland, the same destitute class, are but too prominent, as is evident to those who will but inquire into their necessities,—and lastly in the United States there are both paupers by law, and beggars, and vagrants, by connivance, as in England. In Boston alone it is estimated that 2000 persons get their daily bread by begging and fraud. By the report of the Secretary of the State of New

York, February 29, 1824, it appears that,—

In the State of	New York, one person in	220	is a pauper
	Massachusetts	68	
	Connecticut	150	
	New Hampshire	100	
	Delaware	227	

According to the relative pauperism of New Hampshire, a population equal to that of the Bath Union, would contain 640 paupers, and according to that of Massachusetts nearly 1000 paupers. In 1841, Bath union contained 633 paupers, and in 1843, 681.

So that we clearly perceive that although a large proportion of our population is in a deplorable state of destitution, yet they are not generally so bad off as the poorer classes in other countries. But if the philanthropist can devise a means of alleviating the misery of his species, and particularly that of his fellow subjects, he well merits the kind feelings and gratitude not only of the class so benefitted, but of his countrymen generally.

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AN INQUIRY

INTO THE CAUSES OF, AND REMEDIES FOR THE EXISTING DISTRESSES OF THE COUNTRY.

CHAP. I.

ENGLISH SOCIETY AND INSTITUTIONS DURING THE EARLY AGES.

The ancient Britons—Their state of civilization—Their numbers—Arts—Mode of warfare—Habits—The Druids—The Saxons—The effect of the Saxon conquest—Institutions—The inhabitants in a state of slavery—Handicrafts—Religion.

In every part of the globe, man, in a state of nature, is the same kind of animal—his wants, his appetites, his passions, his peaceable or ferocious habits, his distrust of strangers, his eagerness in the gratification of his sensualities—these will be of the same nature, and will be always modified and influenced by climate and local circumstances: inasmuch as, on some parts of the earth, fertility or the luxurience of nature may produce him an abundance, or sterility may make him the object of constant want. These observations are called for, by reflecting on the state of barbarism, or the degree of civilization, our forefathers, the ancient Britons, possessed at the period of their earliest authentic history. Julius Cæsar, when he invaded the British shores, found the inhabitants of the island

not in that rude uncivilized state, in which the countries of New Zealand, Australia, the inland parts of Africa and America were, when first discovered, but removed a grade above them in the social scale: this may be readily inferred, both from their great numbers, their modes of warfare, and their manner of living. As it regards their numbers and state of civilization, an eminent historian says, the contests which took place between the Britons and the famed Roman legions, at a period when the discipline of the Roman army was at its highest state, and when the troops composing that army were commanded by generals of consummate skill and of considerable experience, was certainly very unequal.

A brief examination of the arts and practices of war by the two contending parties, may serve to explain in a great measure, the *state of civilization* in which the invader found the people of the island, when he undertook its conquest.

The most striking result of such an enquiry will be, that the Britons were much farther removed from barbarism, and had consequently arrived at a greater degree of civilization, than the savage aborigines of either the old or new continent with which we are frequently accustomed to compare them. Were this not the case, the somewhat unsuccessful employment against them, of so large an army as Cæsar commanded, and landed on their shores, would have been disgraceful to the most renowned people on the face of the earth.

Their modes of warfare.

Their war chariots, which several times produced such tremendous effects on the army of the invaders, and the use of which seems at this period to have been peculiar to the Britons, would of themselves prove a high degree of mechanical skill, and an acquaintance with several useful arts. These cars were of various forms and sizes, some being rude, and others of curious and elegant workmanship. Those most commonly in use and called *Esseda*, by the Romans, were made to contain each a charioteer for driving, and one, two, or three warriors for fighting :—they were at the same time strong and light; the extremity of their axles, and other salient points, were armed with scythes and hooks, for cutting and tearing whatever fell in their way, as they proceeded rapidly along. The horses attached to them were perfect in their training, and so well in hand, that they could be driven with the greatest speed over the roughest country, and even through the woods, which were then abundant in every part of the island. The Britons managed these war chariots with such a dexterity and agility, and at the same time with such deadly success, as not only astonished, but even intimidated the Romans; inasmuch, as their *number* was so great that they attacked their opponents at the same time in different parts of their army. Cæsar says, that at the commencement of an action, they drove about the flanks of his army, throwing darts from their cars, and such was the effect, that by the noise of their chariots, combined with the rapidity

with which they moved, they often broke the ranks of the legions.

And it appears that when Cæsar *contemplated the conquest* of Britain, he had no mean opinion of the numbers, the valour, and the difficulty of vanquishing the inhabitants, and subduing the island. He says in his commentaries, that when he set sail from Boloign (Boulogne), he embarked with forty ships newly built, besides a great number that he had already at his command, that he had *four thousand* cavalry with the noblemen of every province in Gaul, many of whom were as intrepid and bold among the Gauls in defence of their country, as Cassibellaunus was afterwards among the Britons. He says on his arrival on the British shores, he found the islanders had been there in *vast* multitudes, but were frightened to behold so numerous a navy ; which together amounted to the number of eight hundred vessels, and that they hid themselves in the neighbouring woods and mountains. "Having landed his army and chose a convenient place to encamp in, he enquired of the prisoners where the enemy were lodged, and having ascertained their hiding place, marched with the principal part of his army to dislodge them. He had not marched above *twelve* miles, before he saw the enemy, who having posted their *horse* and *chariots* on the banks of the river (Thames), gave the Romans battle, and endeavoured to oppose their passing it, but they were repulsed by the Roman cavalry, and were obliged again to retire to the woods. Here they had

a position well fortified, where nature and art had equally well secured them :—in front they had a barricado, which they had formerly erected during the times of their internal commotions ; all the passages to their position were blocked up by fallen trees, which had been cut down for the purpose of protection. This position was so effectually secured, that the Romans could not force it, and the Britons themselves felt so confident of their security, that they left it in small parties whenever they felt inclined.

But the increased *civilized mode of warfare* of the Romans, enabled them after a time, successfully to attack them, by means of casting themselves into a *Testudo*, and erecting a mount against their enemy's works :—they then expelled the islanders from their secure position, and drove them further into the country : but Cæsar would not allow his soldiers to pursue them far, for fear of a sudden attack from them, but ordered them to return and fortify themselves in their camp." From this authentic sketch of their mode of warfare, we can form a tolerable idea of the state of civilization in which they then were. They must have been acquainted with the uses of edge tools, otherwise they could not have cut down trees ; but these might have been either introduced by their southern neighbours, or manufactured by themselves ; but their having chariots among them shows very clearly that they could not have been in that uncivilised state with regard to arts, modes of warfare, and implements of attack and defence, as

are the uncultivated tribes of North or South America at the present period. This is not only evident from the description we have of their modes of fighting, but their *progressive civilization* may be inferred from their great numbers; for no people which are in a savage state, can ever become very numerous, inasmuch as independent of internal brutal wars, which would be constantly preventing their progressive increase, famine and pestilence in the shape of disease, would produce the same effect—so that a very populous, barbarous state is an anomaly, and is contrary to the very nature of things—for as population increases in a state, so improvements in the arts of husbandry, and the increased fertility of the soil is made by the ingenuity of man, to produce food sufficient for the inhabitants; and where this is not the case, there are either defects in the mode of husbandry, or inactivity on the part of the inhabitants. The *habitations* of the inhabitants are represented as being furnished with seats resembling our modern chairs; stools they had like the crickets of the peasantry, and others composed of a round block of wood, while the arms of the family or clan were ranged along the wall;—the floor was their bed, on which they promiscuously reclined, without regard to sex or age, and the scanty covering of their body by day, constituted their blanket, or counterpane, by night. To protect themselves from the rigour of the climate, the shaggy skins of the beasts afforded them a covering; their utensils for household uses, were wooden bowls

and platters; with baskets of ozier work to carry their provisions and other portable articles; with coarse pottery bowls, cups, and jars; their fires were kindled on the floor in the middle of their huts, while the smoke emanated from the same opening, which served both for an ingress for its occupants, and a cavity to emit light: their forests supplied them abundantly with wood, and coal was but little known among them; their diet corresponded to the poverty of their habitations, the simplicity of their lives, and the few wants which nature required. The milk of their flocks, and the pure crystal stream were resorted to for quenching their thirst; whilst acorns and berries, with the occasional use of the flesh of their herds, satisfied their hunger. Salt was unknown to the inhabitants of the interior, and was introduced as a general article of use by the Roman conquerors.

The southern parts of the island are represented as being fertile, and yielding abundance of corn, so that the inhabitants must have been well acquainted with agriculture, in how rude soever a state it may have existed, but in the interior, no grain was ever grown, so that their state of ignorance must have been much greater than that of their southern neighbours, while the northern parts of the island were barbarous in the extreme, and wretched from a deficiency of food: wild fruits, and animals taken in the chase being their only subsistence: and even so destitute were they occasionally, as to be obliged to subsist on the

leaves of trees and the roots dug from the earth by the labour of their hands ; and their extreme wretchedness may be educed from the substitute they employed instead of natural food :—an article made by them and chewed, about the size of a bean, which when partaken of, enlivened their animal frame, and invigorated their drooping spirits, and appalled their insatiable hunger, as well as quenched their burning thirst. This appears to have been a drug, with whose qualities they were acquainted, and served their purpose of satisfying the cravings of nature, just as tobacco or opium operates on those who use it ; or as the Indians of America, gird a bandage tightly round their stomachs, to prevent their feeling their want of the natural supply of food.

After successive engagements Julius Cæsar having entirely subdued the country, formed it into a Roman province, instituted the Roman laws, abolished the barbarous Druidical customs of the aborigines, established there salutary institutions, and in the progress of four centuries during which they kept possession of the island, they elevated the character of the inhabitants, from savage barbarity to comparative civilization. He found the inhabitants a cruel race, almost naked, and what clothing they wore was usually the skins of beasts, with their bodies stained with woad to make them appear terrible to their enemies—taught them to erect dwellings of masonry, assisted them to build turrets and walls to keep off the incursions of their northern neighbours, roads

for the more easily travelling from one part of the kingdom to another, villages, towns, and cities, with regular streets, and an effectual municipal organization, had many of their forests laid waste, to prevent the hiding place of the marauder and assassin from being concealed :—and as they had introduced with them the refinements of the Roman metropolis, villas with tesselated pavement, rich in architectural design, and splendid in regard of workmanship, reared their imposing heads in various parts of the island, many relics of which are occasionally dug from their latent hiding-places :—the refinements of the splendid city were exported to the shores of Britain, and there can be no doubt but the inhabitants who were brought in contact with the Romans must have been elevated, from a state of ferocious barbarity, to a more dignified state of civilization ; for as the Romans conquered, they left behind them the beneficial effects of knowledge, arts, and civilized life, and the fruits of this conquest were salutary, beneficial, and ameliorating.

The Druids, even during the time that the Romans possessed the Island, seem to have had a great dominion over the Britons, and resided principally, if we may judge from their relics, in Cornwall and the southern part of the island : and ultimately when expelled by the conquering Romans, from these localities, took up their abode in the Isle of Anglesea, where they remained unmolested for centuries, and were not entirely extirpated until the reign of Edward 3rd. The Druids of Britain, the priests of

Germany and the South of Europe, and the Brachmans of India, seem to have been well known to the ancient Philosopher Pythagoras ;* they had the care and direction of all religious matters, both in Britain and Gaul, and not only in religion, but in civil affairs ; their authority was absolute ; they had the direction of private and public sacrifices ; the deciding of controversies, and the inflicting of punishments ; they were exempt from imposts and military services ; they had the charge of the education of the chiefs, and of persons of distinction ; and a veneration for them was early instilled, and constantly enforced on the young ; they were not ignorant of letters, though they never committed an account of any transaction to writing, but rehearsed it *memoriter* in verse, so that their memories, which by exercise became exceedingly retentive, enabled them to rehearse as many as twenty thousand verses.

But the cruelty of their government, the superstition of their institutions, and the human sacrifices they immolated, show very clearly the *state of religious barbarism* of the inhabitants. The Romans then, in conquering Britain, conferred on it many advantages ; they introduced the arts of civilization, the laws and institutions of refined Rome : divided the country into provinces, constructed roads, overthrew the Druidical temples, improved the internal communication, protected the natives from the incursions of the Picts and Scots, opened a road for the introduction of the Chris-

* Alexander Polyhistor in Clemens Alexandrinus.

tian religion, with a knowledge of the Arts and Sciences.

But it is evident, the conquerors could not keep the vanquished in subjection without a large military force, which extended, by means of camps, from the Land's End to Berwick, the relicts of which are now visible, and can be traced regularly through the kingdom. The domination of Britain, as a Roman province, which lasted nearly four hundred years, came suddenly, and by conquest; yet, after the period of conflict was over, and the country completely subdued, *the change was a happy one for the vanquished.*

The silence of all the early historians, in regard to the province of Britain, during the long period of Roman dominion, attests to the tranquility it enjoyed. Order and laws were established, arts and literature now took the place of imperfect and cruel governments, the constant internal wars, the uninstructed intellects, the mud hovels of the natives, were exchanged for peace, learning, and comfortable dwellings. The country assumed a new face—forests were swept away by the axe, the cultivation of the genial soil succeeded the barrenness of savage life, the beasts of the forests fled before the animals of pasture:—the ox and the sheep took the place of the hyena and the wolf. Where forests had for ages grown, and the rude hovels of the savage had reared its head, towns and cities arose, whose regular buildings, and ornamented architecture, securely protected the multitudes who dwelt within their confines.

The incursions of the Picts and Scots.

But Rome, like other mighty nations, having fallen, from not adapting her institutions to the improved state of her commonwealth—their troops in Britain were recalled from the island to protect their native land from the incursions of northern invaders, and thus the inhabitants, being now left by their protectors, and having entirely lost their ferocious dispositions during the period of the Roman sovereignty, became an easy prey to the more sanguinary Picts and Scots, whose barbarous tribes soon obliterated the genial prospects of fertility and abundance, which had been enjoyed by the inhabitants during the Roman sovereignty. Wars, anarchy, and confusion, were succeeded by famines, and pestilences, which swept away their victims by multitudes:—but the soothing blessings of Christianity having been introduced by the conquerors, was fostered and nurtured by them; the conversion of a great part of the island was accomplished with a rapidity and facility resembling the miraculous triumphs of the Apostolic ages. The sanguinary sacrifices, the wild rites, and turbulent heathenish festivals of the system of Odin, fled, or rather vanished, before the Christian religion, which had now extended, by means of the missionaries and monastic teachers, from one part of the island to the other.

As the government of the Romans was extinct, the inhabitants became a prey to the ruthless Saxons—a fierce and warlike people congregating from Germany and the shores of the Baltic: the sovereignty

of these invaders continued upwards of five hundred years, until the era of the Norman conquest; and was only interrupted by the piratical incursions of the Danes, who repeatedly invaded the islands, laid waste the fertilized lands, and levied contributions on the richest parts of the country.

During the long supremacy of the Anglo-Saxons, the Britons were gradually absorbed in the mass of the new population. Aboriginal traces, and those left by the Romans, became scarce, and towns and villages, which had existed in a state of prosperity, entirely disappeared. To the Anglo-Saxons it has been usual to refer the most valued of our present institutions, though later and more accurate researches have lowered the previous estimate of our obligations to this people. But what exemplifies most strongly the spirit of the Saxon institutions, is the civil inequality among the different classes of the community:—two-thirds, and some historians say even three-fourths of the people, were either absolute slaves to the remainder, or in an intermediate state of vassalage to them;—these might be put in bonds and whipped, and on one occasion are spoken of as having been actually yoked:—"let every man know his own team."—(*Farmer's History of the Anglo-Saxons*, v. III, p. 91).

Cattle and slaves were always reckoned in the same catalogue, as part of the private property of noblemen, under the denomination of *live stock* or *money*: indeed, a father, if very poor, was allowed

to give up his son to slavery for seven years, if the child's consent were given. English slaves were sold to the Irish and Scotch, who were of this description, namely, children whose parents were unable or unwilling to support them.

The predominant crimes of the natives were of a most abominable, atrocious character; plunder of whole towns and districts, the prisoners being sold for slaves, female violations; assassinations were of common occurrence, and the punishment of delinquents, when they could be taken, was either shockingly cruel, or strangely inconsistent with modern notions of penal jurisprudence: although theft to the amount of one shilling was a capital offence, yet the greatest crimes which mankind can be capable of committing, even murder itself, might be commuted by a pecuniary fine. Thus, the amount required as an atonement for the murder of a king, was 30,000 thrymas,* for a prince, one half, and so on gradually descending, until the sum of 260 thrymas was considered an equivalent for the murder of a common person.

At this period, and during the sovereignty of the Anglo-Saxons in the island, the *state of the lower orders of society seems to have been exceedingly oppressive and tyrannical.* These conquerors not only kept dominion over the whole population, but, as we have just observed, made three-fourths of the inha-

* A *thryma* was equal in value to six Saxon pence, or three pence of our coin.

bitants absolute slaves; and they were considered as much a part of the stock of an estate, as the trees which grew thereon, or the foliage of the ground: so that when a portion of the soil was transferred from one proprietor to another, the villains or slaves were transferred with it. This barbarous custom may derive a clear illustration by a practice which was prevalent in our agricultural districts within our own recollection: where apprentices were bound to serve on a particular estate, from their childhood to manhood: and although the occupants of the estate might remove wherever they choose to locate themselves, the apprentices on the farm were obliged, by law, to remain a fixture.

These Anglo-Saxon villains could not withdraw themselves from the soil to which they were said to be adscribed, nor could they withhold their services from whoever might become, by inheritance or purchase, or in any other legal way, the lord of the manor. They were under the same obligations under which every modern tenant lies, during the period of his lease; with this difference only, that the tenant may quit when his tenancy expires, while the villain remained on the manor, to do service to succeeding occupiers during his existence. But it must be observed, that although he was the property of the proprietor of the soil, yet the owner was bound to support him, both in sickness, infirmity, and in decrepid old age, or whenever he could not, by his labor, support himself. The master, or owner of the soil,

could no more get rid of the serf, than he could leave the manor, or be expelled from it: in fact, the soil was as much the villain's, as he was the property of the soil; it was his property, inasmuch as he was bound to occupy and cultivate, and reap the produce of the land; and for such services, the land was bound by its possessor, to afford him, both in health and sickness, in youth or in old age, a sufficient maintenance.

Some notice may be taken here of the state of the useful arts during this period. It is asserted by all historians, that the operatives and handicraftmen were all slaves, or nearly so. The clergy, and those in power and affluence, had their domestic servants, who were qualified to supply them with the necessary articles in common use among them. Monasteries had been founded during the period the Romans had possession of the island, and in them resided smiths, carpenters, millers, and other operatives, whose services were likely to be required. Smiths and carpenters were the most numerous and important, as ministering to the chief secular pursuit of the inhabitants, both in providing weapons for war, or for making implements of agriculture The shoemaker was a comprehensive trade, and included branches now separate, as the saddler and harness-maker. The salter, cook, baker, and fisherman, were common occupations. The clergy were skilled in mechanical arts; and a law of Edgar expressly commanded every priest "diligently to learn some handicraft."

One of the most remarkable features of the early

period, is the slow progress which was made in the cultivation of the arts and sciences.

For nearly a thousand years after the Romans first conquered the island, were the mechanical arts in a stationary position ; no material alteration seems to have been effected ; at least, historians are silent in describing any very interesting event : intestine wars, rapine, bloodshed, cruelty, and oppression, seem to be the all-engrossing subjects of the historians who have written on this age ; yet it must be observed, that the foundations of our present institutions may be eadily traced to the period before the Norman conquest. What a contrast to the history of the last two centuries, during which period the sciences have received such important acquisitions by the discoveries of the studious? laws have been amended, repealed, enacted or altered, to suit the progressing state of society ; political institutions have received those amendments and alterations which the refined spirit of the age demands ; national riches, by the magic improvements in machinery, have been created ; and the state of society more altered than in any similar period of our history.

And if we look forward into the changes likely to be made during the next century, there can be no doubt, by reasoning from analogy, as the spirit of invention is alive, the arts and sciences will receive such wonderful acquisitions as we have no conception of; inasmuch as those who lived a century ago could not have had the most distant idea of the

progression of the present age, compared with the period in which they existed.

Oil lights have disappeared through the splendour of gas; locomotives, by steam, have expelled the horse carriages from the roads, and the transition from one country to another, by the aid of steamers, has succeeded the uncertain and slow progress of sailing vessels: and those repeated alterations of the habitual state of things, naturally affect society in its various ramifications. The improvements in machinery are first felt by the proprietor, as a capitalist and manufacturer: he must either adopt them, or his neighbouring mill-owner will, by having improved machinery, have the advantage of rendering goods at a less price than he; while, with the operative, the case may be a harder one,—he is either thrown out of employment, or his wages are reduced; indeed the changes have been so sudden, that we can hardly contemplate the effect of one improvement, before it is succeeded by another. And thus society seems to be undergoing perpetual progressions.

State of the island during the period of the Danes and Saxons.

CHAP. II.

THE LOWER CLASSES DURING THE FEUDAL AGES.

Introduction of the Saxon and Norman laws—Their habits—Improvements by Alfred—State of society during his reign—The Norman conquest—Its effects on the people—State of society—Feudalism—Introduction of manufactures—Luxuries of dress—Labourers—Commerce—Its effects both on the labouring population and on the habits of the Barons—Poor laws.

THERE can be no doubt but the conquering the island by the Romans, was an important advantage to the vanquished, as they introduced the arts and sciences, and these took the place lately occupied by savage ferocity and Druidical tyranny. Monasteries were erected during the Roman dynasty, in which the skilful artizan and industrious handicraftsman were pursuing their useful toil for the benefit not only of the inmates of these sanctuaries, but of those who reside in the vicinity. And as the Saxons and Danes afterwards became possessors of the soil, they introduced the laws and institutions of their respective kingdoms, or engrafted them upon the stocks of those which were then in existence. And although we have not observed any very remarkable improvement in the *state of society* during the periods these conquerors held possession of the island, yet if we reflect upon the important change brought upon the natives, by a gradual transition from ferocious barbarity to improving civilization, and from a state of savage ferocity and habitual degradation, to a menial state

of subservient *villainage;* we must be aware that the change to the then inhabitants must have been so great as to affect society in all its various gradations.

Many of the Saxon institutions remain even in our own times, and were the foundations on which the lives and properties of the inhabitants generally were secure from the oppression of aggrandisement and political tyranny. Amongst the Saxon institutions may be mentioned the trial by jury, one of the greatest benefits of the age, which was first instituted by Alfred, in the ninth century, and that bulwark to the lives and liberties of the people is still not only highly prized, but is their chief protection against oppression.

The division of the kingdom into shires or counties, was the effort of the same great mind, and he not only made the sub-division of counties, but adapted judges to administer justice throughout the land:—the counties he again sub-divided into tythings, each tything into hundreds, or wapentakes, and these again into tythings of ten householders each: each of these householders stood engaged to the then king as a pledge for the good behaviour of his family; and all the ten householders were mutually pledges for each other: so that if any one of the tythings was suspected of an offence; if the headborough, or chief of the tything, would not be security for him, he was imprisoned; and if he made his escape, the tything and hundred were fined to the king.

Each shire was under the government of an earl,

under whom was the *reive* his deputy, since from his office called *shire-reive* or sheriff. And so effectual were these regulations, that historians say he caused bracelets of gold to be hung up in the highways as a challenge to robbers, and they remained untouched.

He was not only learned himself, but a promoter of learning in his subjects. It is said he was nearly twelve years of age before he began to acquire the first elements of literature, but his progress was so rapid, that he became one of the first scholars of the day, and although the ignorance of the age in which he lived was so great, that he complains that no one in the western counties could be found to interpret the service of the Roman ritual, yet by his example, and by his exertions, the higher orders of the people and the clergy generally, were soon exalted above this degradation.

The *habits* and *manners* of the people must have much improved under such an enlightened legislator; and although before his time, and during the early part of his reign, and after his decease, commotions, wars, anarchy, and bloodshed were constant occurrences, yet the peace and tranquility enjoyed by the kingdom during his sovereignty, must have been favorable to the prosperity of the various grades of the population. Architecture seems to have greatly flourished during his reign; and with it, of necessity, the arts and sciences. The erection of churches, the building of monasteries, the raising of castles, seem to have occupied the industry of mankind during the

Saxon conquests ; but all this state of things suddenly gave way to a change in the condition of the whole kingdom by *the Norman conquest.*

The Norman conquest produced a change in the *habits of the people,* as essentially great as at the conquest of the island, at first, by Julius Cæsar. It was impossible but that during the constant jarring wars and intestine commotions of the Saxon and Danish ages, the people, who are always the *general sufferers by warfare,* must have remained, if not stationary in the scale of civilization, yet not improving in arts, sciences, and manufacture : for it must be borne in mind, that the enjoyment of internal and external peace, must be the period most congenial for cultivating knowledge, improvements in manufacture, or the increased produce of agriculture.

England, at the time of the Norman conquest, was of very little note among the nations of the earth : her fleet was insignificant ; her armies insufficient to defend her shores ; her commerce unimportant ; her manufactures just able to provide woollen clothing for her people ; her agriculture in so low a state, that it barely produced a sufficiency of food for her population ; while the *arts* and *sciences* were confined within exceedingly narrow limits, and very few were benefitted by them. The poor and destitute became the property of the great, and her condition, as a kingdom, was exceedingly degrading, while gluttony and drunkenness, and other immoral practices, were habitual to the great ; the dress, the dwellings, and

the domestic accommodation of *the people* of all ranks, were mean and wretched in the extreme.

The conquest of the country by the Normans was a benefit to the conquered, inasmuch as they were more advanced in civilization than the Saxons; they introduced into the country, not only learning, but improved modes of life: they set an example of elegance and magnificence to which the Saxons were strangers, in their festivities, in their apparel, and in all their modes of expenditure. Instead of wasting their substance in eating and drinking, their pride was to devote the greater portion of it to works of permanent utility or embellishment, to increasing the number of castles, churches, and monasteries.

Architecture, and consequently the mechanical arts, were nourished by them: agriculture was improved, and commerce extended. Under their government, the resources of the kingdom were increased, and England became to be recognized as of importance in the political system of Europe.

The *constitutional changes* introduced by the Norman conquest do not appear to have greatly altered the legal position of the different ranks of the population. The laboring classes, and the great body of the occupiers and cultivators of the land, remained, as during the Saxon reigns, serfs, villains, or bondsmen attached to a particular manor, or to an adventitious location, the property of the owner of the soil: although the lands themselves were transferred from their old vanquished occupiers, to the favorites and vassals of

the conqueror, so these altered the condition of the peasantry from *serfs* to the *feudal system*. The laws and institutions of the country remained nearly the same during the sovereignty of the Normans as they were before, and yet the yoke of the Normans was excessively grievous to the ancient and former possessors of the country. They alienated the lands of the kingdom from its former occupiers, and distributed them amongst themselves; there was no escaping from this change of masters: the whole body of the landed proprietors of the country was suddenly stripped of their possessions, which they had peaceably enjoyed, and new lordships entered upon the soil and its feudal cultivators.

The government was essentially a government of injustice and rapine, and great as was the Norman revolution, it did not effect any *change* in the condition of *the masses* of society. Their services were as necessary to the new, as to their old masters, and the change from a state of villainage, or serfdom, to feudalism, was of very small importance to the serf; except by enforcing, with greater strictness, the feudal relations, the better to maintain the ascendancy of the conquerors.

But as soon as the ancient slavery of the labourer began to be exchanged for freedom, which, after the conquest, began gradually to be developed, and the labourer being comparatively his own master, and left to his own resources, then, when either want of employment, the infirmities of age, or the ravages of

sickness came upon him, his condition was exceedingly deplorable, if he had not been able, during his youth and when in possession of health, to have provided against these contingencies. Hence, the *destitute poor*, as *a class* of the community, make a prominent figure in the annals of the ancient statutes; but it is there they are designated either as *beggars* or *thieves*.

The bondage of the English serf was first broken by the Christian religion: when, in the eleventh century, the then Pope first formally issued a bull for the emancipation of all slaves under his sovereignty, and in 1102, in the great council of the nation, it was declared unlawful for any man *to sell slaves openly in the market;* which before that time had been the common practice of the country.

Many records, as well as historical facts, prove that slavery, which before the conquest was general and universal, was not entirely removed for some centuries after. Sir F. Eden states from ancient authority, that a slave and his family were sold by the Abbot of Dunstable for 13*s*. 4*d*. Even in later periods, slavery existed to an extent which we, in the present day, could have no idea, were not history conclusive as to the fact. Cromwell, in 1650, sent his Scotch prisoners into slavery, and sold them to the West India Planters: and even Charles II. banished, in his religious persecutions, many of the Quakers who fell under his displeasure, and sent them as slaves into exile.

But numberless instances of a similar kind might

be cited from ancient historians, as corroborative of the fact, that slavery existed, though to a limited extent, during the Norman dynasty; but, as the object of the present paper is to endeavour to state the *causes* of the *present distresses* among us, and not to trace the various gradations of the population from barbarity to villainage, from serfdom to feudalism, and from slavery to liberty, we shall glance at the changes society was imperceptibly undergoing at this period, but it will be utterly impossible to show the causes of *the present distress* among our commercial, manufacturing, and agricultural population, except by illustrating the effect of changes on the condition of the people.

We have already noted that serfdom, about this period, was about being abolished, and that feudalism took its place under the yoke of the Normans. The clergy, who have always had considerable influence over the great body of the people, and, in those early days had the principal management in the distribution of justice, took every opportunity of exerting their influence in behalf of the prisoners which were taken in battle, to prevent their being made slaves, as well as among the Norman nobility, for the manumission of those unfortunate objects who appeared to be in so deplorable a situation.

But it must not be imagined, that with the conquest of the Normans, the sale of human flesh was entirely discontinued; for both *Magna Charta*, and in the charters which *Henry III* granted to the various

privileged bodies, a class of men are referred to, who appear to be recognized only as chattel property : it being expressly forbidden for guardians to *waste* the *men* or cattle on the estates of minors ; this is a convincing proof that a race of beings existed, who were as much slaves then, as are the unfortunate objects who groan in the sugar plantations of Brazil, or spend their toilsome days in the inhospitable climes of Siberia, in the present day.

Immediately as the manumission of the serf proceeded, an important class in society began to spring into existence, and to become of some importance to the state. By granting freedom to the villains, they, being freed from vassalage, naturally began to acquire some property ; and as the mightiest rivers have their rise generally from the most insignificant springs, so these serfs, once having obtained their freedom, and having an interested share in the welfare of the nation, naturally endeavoured to better their condition, and to raise themselves in the social scale. And whatever may have been the improvements in the condition of the people, from that period to the present, these may be either directly or indirectly traced to the influence which this class has exerted over the barons and aristocracy of the land.

The majority of the inhabitants being, by this manumission, elevated in the political scale, soon acquired, through thrifty industry, and assiduous application in their various callings, wealth, and its natural concomitants, power, importance, and municipal honours.

But, in proportion as this class of the community was elevated, their weight began to be felt, so they created the jealousy of the barons: inasmuch, as laws began to be enacted to regulate their habits, their dress, and not only this, but the clothing of all persons beneath their sphere and station in society.

In 1463, an act was passed by the legislature, to prohibit the progress of luxury, and to curtail the excessive expense of clothing of the *middle* and *lower* classes, on the ground, as it is alledged in the preamble of the act, that "The commons, as well men as women, were accustomed to deck themselves in costly and inordinate array and apparel, to the great displeasure of Almighty God, and to the impoverishing the realm; and for the more effectually enriching the inhabitants of other countries, to the injury of the commonwealth," it was enacted, that the clothing of servants, common labourers, and artificers, dwelling out of a city or borough, as well as that of their wives and families, should be made of cloth, the price of which should not exceed 2*s*. per yard. Another clause in the same act, even implies the prevalence among the same classes of the community, of a preponderance for gaudy apparel, even beyond the price of high-priced broad-cloth; a great quantity of which was now imported from the Flemings, and as it had to be paid for by the current coin of the realm, the greater the quantity of this broad-cloth which was consumed, the greater would be the injury to the nation. Labourers and their wives, as well as arti-

ficers, with their wives and families, were forbidden to adorn their bodies with girdles of silver.

But it must be borne in mind, that generally, as one portion of the community is raised in the scale of national importance, so another class, the idle, the profligate, the thoughtless, the decrepid, or the unfortunate, would be sunk lower and lower in the paths of poverty, want, and destitution. Yet, as this class of the community is frequently blended, so that the most scrutinizing eye cannot discover the line between idleness and thoughtlessness, or mark where profligacy or infirmity commences, this class have claims upon the other portions of the nation which are irresistable. Hence the foundation of our system of *Poor Laws*, which may first have been enacted in the reign of Elizabeth, but can be very readily traced to the reign of Edward III., when the claims of the necessitous became so urgent, that they were forced upon the notice of the legislature. And it was then enacted by law, that charity should not be extended to, nor alms bestowed upon, any persons who were able to work, inasmuch as labour would be provided for them; and if any person violated the enactment, he should be fined 10*l.*: and not only did this penalty fall upon those who relieved any able-bodied labourer, who could obtain, but was unwilling to work, but also upon every person who should harbour or employ any servant who had runaway from his or her former master: and it was further enacted by the same law, that any able-bodied man or woman who should be

found begging, when they could procure employment, should be treated in the same manner as a servant who had left the district in which he was born, and in which he had been accustomed to reside, without the requisite testimonials from the magistrate of the locality, which were indispensable for his protection.

About this period, we find a mention made of a class of labourers who were *willing to work*, but who were *unable to find employment*, and also of a class who are incapable of labour by reason of sickness, old age, or bodily infirmity. The relief and comfort of this class, appears to be the great legislative problem, which has occupied the attention of the greatest and wisest men of different ages in the solution.

The woollen trade had now been in a flourishing state some years, by the assistance of the Flemish operatives, who had been encouraged by the legislature to locate themselves in various parts of the kingdom. The inhabitants of our cities and towns would naturally be anxious to acquire a knowledge of such handicraft, and the influx from the rural districts must have tended greatly to augment the number of the operative class of the community. Industry produced wealth, and a rage for gaudy, expensive dress, was so exceedingly prevalent, that acts of Parliament were passed to regulate the dress and ornaments of the people. The inhabitants of the present day can scarcely bring their mind to believe the enactments of the legislature, that they should have passed laws to prevent a certain portion of the inhabitants from

wearing "garments with fur on them, or to wear in array for his body any fustian, bustian, or fustian of Naples, or to wear any scarlet cloth in grain, or any fur, except that of black or white lamb." It was also enacted, about this period, "that no persons, except of noble rank, should wear any garments of indecent brevity;" and, therefore, it appears, that the nobility only were to expose their persons in an indecent manner. Lords only, and no others, were permitted to wear shoes or boots, having pikes more than two inches long attached to them; and no persons under the degree of a knight, were permitted to wear any velvet in their doublets, or any damask or satin in their gowns.

From these, and similar enactments, we are led to conclude, that commerce, industry, and application to business, had created wealth among one class of the community, while, from the former enactments regarding the pauperism of another class of the community, we readily infer, that in proportion as *one class of the people became wealthy, another, and a very important class, became sunk in indigence and enyulphed in poverty:* so that pauperism became general among the many, and required the strong arm of the law to prevent the necessitous from becoming a burden to those localities to which they were not attached by birth. Commerce and manufactures had entirely changed the state of society, so that England, which had hitherto been entirely an agricultural, became gradually a regular manufacturing country.

Cause of the decay of ancient boroughs.

New towns sprung up, and the ancient boroughs gradually dwindled into decay, or were lessened in importance by the rising of new interests, and by the cultivation of new principles. Birmingham, the emporium of the hard-ware manufactories, began, about this period, to be an important town: while Manchester, the seat of the linen, silk, and cotton manufactories, began to flourish by means of its rapidly increasing trade: and many other towns, which at this period were not endowed with corporate privileges, became the objects of general resort, inasmuch, as no personal restrictions were known there, and the population hoped to increase their personal comforts, and to better their conditions, by a residence in such seats of increasing opulence, instead of residing perpetually in the old privileged corporate towns, or in the adjacent agricultural districts.

This state of the improving manufacturing industry of the town population, operated very favourably on the condition of those who resorted from the agricultural districts to the growing towns, which were now rapidly rising in importance, by the increasing wealth of the manufacturers. The woollen manufacture had been cultivated on a small scale during the times of the Saxons and Danes, before the conquest of William; but during those ages it had been confined to those towns, which were privileged by the then ruling monarch: consequently, chartered towns and boroughs, were the only places where these manufactories were carried on.

Origin of privileged companies.

Hence may be traced the commencement of those associations, which exist even to the present day, among various classes of manufacturers and mechanics, particularly in chartered towns,—they are sometimes called guilds, and, at other times, companies. They were first formed by the woollen manufacturers, the Flemish, who were obliged to reside in such towns, for fear of molestation by the natives; but the English soon availed themselves of the advantages enjoyed by these foreigners, and were gradually incorporated with them. These Flemings were not only protected by the ruling monarch, but invited to locate themselves, and practice their useful arts, in whatever part of the kingdom they choose to reside; and they generally selected the metropolis as their place of residence, on account of greater security, and the greater demand for their goods among the residents of the court. Hence, in London, there are more privileged bodies than in any other town in the empire.

And such was the want of police at this period, that robbers and depredators formed themselves into regular bands, and choose a captain over them, whose resort was generally in some secluded wood, from which they issued to attack, rob, and frequently to kill, the unwary traveller: and it frequently happened, that the captain of such a brigand of depredators, was some disloyal or needy baron, whose disappointment of regal favour, or whose poverty made him become the leader of a plundering banditti, and, reckless of consequences: the king's retinue itself, was frequently the

object of their fiercest attack, who were pillaged of of all their valuable property.

Towns were frequently plundered during the times of their fairs, and the goods of the merchant, as well as the property of the inhabitants, were indiscriminately made the booty of these marauders: and frequently men of rank were carried away prisoners, for the purpose of procuring a handsome ransom for their liberation, and for their restitution to their bewailing families.

Such a state of society required the *peaceable* and *well-disposed* to unite together for mutual protection; hence, bye-laws were enacted, local troops were enlisted, and other means of mutual defence were resorted to, being forced on those who dreaded the incursions of the ruthless robber; they were then enabled to enjoy the blessings of order, and to carry on their avocations in security; they thus acquired the means of enriching themselves, while the occupiers of the land, and the *tillers of the soil*, were languishing in *poverty*, or pining in *servitude*.

The *superior comforts* to be procured and enjoyed by the inhabitants of cities and towns, inspired the labourers of the agricultural districts with a desire to emancipate themselves from the trammels of their domain lords, and to participate in the comforts to be enjoyed in the manufacturing districts. By these means, probably, and by the hardships of servitude, inflicted on the agricultural population by the barons, and under them, their tenants, the manufacturing

towns were constantly enlarging in size, augmenting in importance, and increasing in population; and agricultural labourers are, for the first time, mentioned as a distinct class, entitled to the protection of the legislature: this act was passed in the early part of the reign of Edward III, in the year 1350; whose regulations, however unjust and impolitic, afford at least important information, that labourers in husbandry, as well as operatives on the loom, equally worked for hire, and were under the protection of the law.

The *labouring population*, being freed from the fetters of their local tyrants, began to taste and enjoy the sweets of liberty, which were fostered by the rapid improvements now making in useful manufactures, and in the arts and sciences, nurtured and cherished by the ever-humanizing beams of the Christian religion. Commerce now began to reward her favourites with riches and abundance; and luxuries, as the natural concomitants of wealth, were indulged in by her pampered votaries: thus, the improvements in manufactures led to a salutary revolution in the manners of the great feudal barons, and, through them, to their tenantry, and to the subordinate gradations of the community. Instead of squandering immense sums in the maintenance of a host of dependants, those sums were expended in the production of works of arts, commerce, and manufacture; so the barons became the best customers of the manufacturing population, and indirectly, the *means of their flourishing*. For the purchase of a pair of diamond buckles,

they would lay out as much money as they used to expend in the maintenance of at least a thousand men for a year; and with it, the weight and authority which such a command and vassalage would give.*

Personal vanity was not, however, the only cause which prompted the feudal lords to change their ancient habits and former modes of pompous display, it was the desire of personal comfort, and the gratification of social habits, as well as the enjoyment of luxurious delicacies; these combined to induce these barons to allow their vassals to quit their livery for the independence of trade; as they would then have so much more of their incomes to bestow in such laudable gratifications. The baron, by dismissing one half of his usual retinue, could purchase the means of multiplying his comforts:—he could clothe himself and his family in fine woollen cloth, or the finer linen; instead of habiting himself as his ancestors were accustomed to be clad, in a coarse canvass jacket, and a leathern jerkin: his lands might be enriched with the fruitful garden, in which might be grown all the improved roots and fruits of horticulture, as they were introduced into the isle: and by it, he could make a dreary and isolated castle more comfortable for its recipients and inmates,—substituting warm hangings for the cold bare stone wall, whose roughness, and inhospitable appearance, were only covered by a thick coat of whitewash; and, instead of the turreted opening to emit light, would be exhibited a glazed latticed window, with its comforts and conveniencies.

* *Wealth of Nations*, b. iii, c. 4.

CHAP. III.

CIVIL WAR INJURIOUS TO SOCIETY.

Effects of intestine war on the labouring population—Its advantages to the Anglo-Saxons—Pauperism during the reign of Edward III.—Destitution of the poor relieved by the ruling monarch—Effects of a sudden freedom from vassalage—The prosperity of the woollen trade—Cause of its prosperity or decay.

In tracing society through its various gradations, so as to form a correct estimate of the *causes of destitution and misery* which have in various ages been the lot of a great portion of our island, it will be indispensable to glance, for a few moments, at the effects of intestine wars: sometimes these have been between rivals for the crown, and, at other times, between different barons, with all their feudal dependnts, to decide some hostile quarrel, or to gratify some favourite passion.

These intestine quarrels have been generally carried on in the spirit of chivalry; and however the opposing chiefs may have been affected by the result, the common soldiers, with lamenting widows, and sorrowing children, would naturally be among the universal sufferers, and they must have required either the voluntary aid of charity, or the compulsory assistance of the more affluent, to sustain their miserable existence, and to mitigate their pining misery.

When William the Conqueror invaded the kingdom, and expelled the Saxons from the throne, his

revolution caused great misery and desolation to the unfortunate relics of both the vanquished and the victors, while the universal confiscation of the lands of all the heretofore possessors of them, at that time, and the bestowment of them on his peculiar favourites and adventurous followers, must have been attended with similar results to those who were dispossessed. But these changes in the altered situations of adverse parties, however much they were felt by those concerned, must have been trifling, if compared with the universal misery inflicted on the inhabitants, by the perpetual continuance of civil wars.

The family rupture of the sons of William I., for the maintaining, or procuring, the ascendancy of the kingdom, between Robert and William, who were each joined by the respective barons of Normandy and England, was injurious to their *followers* and *dependants*. The barons, who followed them, were again assisted by the *vassals* of the respective baronies, fiefs, and governments. Yet, these international broils upon the whole, were beneficial to the liberty of a certain class of the Anglo-Saxons, who had been so suddenly deprived of their ill-gotten lands and fiefdoms, inasmuch, as William was obliged to call in the assistance of the native inhabitants to protect himself from his brother's attacks, who was not only aided in his enterprize by the Normans, over whom he reigned, and who hoped to enrich themselves by the conquest of the island, but by his uncle *Odo*, Archbishop of Canterbury, who fitted out a fleet of

privateers, to molest his other nephew, William; while he assisted the inactive Robert in an enterprize for which he himself was totally unfit.

But *the effects* of civil commotions on a community, may be readily traced, by reviewing the manner in which this offensive and defensive warfare was carried on between the two brothers.

William, in order to strengthen his tottering cause, was obliged to call to his assistance the barons whom his father William, at the conquest, had dispossessed of their long held possessions—of those few men, who had influence over the national resources, and who had survived the slow and wasting conquest,—he promised, as a reward for their assistance, that they should enjoy the protection of their ancient laws and customs,—that they should have the privilege of hunting in their favourite forests, as their fathers had enjoyed,—and that he would relieve them from many of the imposts and odious tributes his father had imposed. These flattering promises were but indifferently kept; but the English people *benefitted somewhat* by the king's emergencies, and commenced, from this moment, an improvement in condition and consideration, which continued, progressively, to increase under his successors.—"Contested titles, and a disputed succession, obliged Rufus, and his successors, to make concessions to the Anglo-Saxons, who so much surpassed the conquering nation in numbers; and these immediate sources of terrible evils to England, became the causes of its final deliverance."

Wars always injurious to society.

Flattered by his confidence, the barons, who had been summoned to attend him, zealously promoted his designs; and when Rufus proclaimed the banner of war, which was,—"Let every man, who is not a man of nothing, whether he live in burgh, or out of burgh, leave his house and come,"—there came thirty thousand Englishmen to the place appointed for the muster. This warfare, although advantageous to the troops of Rufus, must have been the cause of misery and destitution to the friends, dependants, and families, of the contending parties. The lands must have remained uncultivated, when the tillers thereof were obliged to follow their feudal lord to the battle, while women must have been left widows, and children fatherless, by means of such unnatural warfare: and a large portion of the country would be overrun by robbers, who would spoil and destroy what they could not carry off, and thus leave the poor unprotected inhabitants in a state of destitution: hence would arise *famines*, and its concomitants,—*disease* and desolation,—and death would gradually free the sufferers from their miseries: and such effects as these, must generally follow intestine wars and disputed titles: while the arts, sciences, commerce, and increased manufacture, connected with the prosperity of the kingdom, are nourished only by internal and external peace. And where such prosperity does not exist under such favourable circumstance, its causes may be traced to bad legislation. Such like must have been the destitution caused by

internal warfare,—misery must have been predominant, and beggary the lot of a large portion of the inhabitants, so that the legislature were compelled to enact stringent laws, to endeavour to lessen its general adoption. It cannot be denied, that the legislators shut their eyes for a long time against this growing evil state of things; but, at length,* the rulers were obliged to pass a law, which enacted, that "beggars, and persons impotent to serve, shall abide in the cities or towns where they be dwelling at the time of the proclamation of this statute, and if the people of the said cities or towns will not, or cannot, suffice to maintain them, then the said beggars shall take them to other towns, within the hundred or rape, or wapentake, or to the towns where they were born, within forty days after the said proclamation made, and there shall continually abide during their lives." By this, it appears, that poverty and its concomitant, pauperism, had so far been predominant among a large class of the community, that they became so troublesome to the more fortunate classes, among which we must notice the legislators, that such stringent acts could only be called into existence by the powerful claims that poverty and destitution had made.

But in the same statute, we have a convincing proof, by one of its succeeding enactments, in what light this *destitute class* was looked on by the legis-

* Edward III.

lators,—it is ordered, "that the sheriffs, mayors, bailiffs, and keepers of goals, shall be holden and charged to receive, the said servants, labourers, beggars, and vagabonds, and to keep them in prison, without letting to mainprize or in bail, and without fee, or any other thing taking of themselves, or by any other, so long as they may be so imprisoned, or at their entry, or at their going forth." But as it is not possible to prevent poverty by legislation, or to fill a hungry belly by acts of parliament, we find a large portion of the people dependent on the more fortunate classes for their daily subsistence.

Historians assert, that the ruling monarch distributed daily, by his agents, large sums, in private alms, for the support of the poor: it is also said, from the same authority, that the festivals of particular saints, were honored by feasting many thousands of the poor, at the expense of the *monastic authorities*. Among the clong rolls, still extant, in addition to many subjects of a similar nature, are recorded :—* "That at the commencement of the new year, the king's treasurer is commanded to cause 15,000 poor persons to be fed in St. Paul's Church-yard, on the day of the conversion of St. Paul; and to cause 1500 wax tapers to be made, and placed in St. Paul's church, London, on the same occasion." In the succeeding month, the same treasurer is ordered to give directions for feeding as many persons as can enter the

* Henry III. A. D. 1244.

great or lesser hall, at Westminster, on the anniversary of Joan, the king's sister, formerly Queen of Scotland; and in December, 6000 poor persons are ordered to be fed at Westminster, at the Feast of the Circumcision: with a considerate view of being provided with food at such a very inclement season: and it is particularly noted, that all the aged and infirm should be fed in the great and lesser hall—the less infirm and the middle aged, in the king's chamber, and the children, in the queen's chamber.

The kitchens of the nobility, who had such a large number of retainers to feed daily, were of very great dimensions. There is an account of an order, dated April 19, 1206, commanding Hugh de Neville to have the king's kitchen, at Clarendon, roofed with shingles, and to cause two new kitchens to be erected, one at Marlborough, and the other at Lugarshall, to dress the royal dinners in; and it is particularly directed, that each kitchen should be provided with furnaces sufficiently large to roast *two* or *three oxen* at once. Such feasting reminds one of an account related by Richardson, in his *Notes on the American Indians:* that they feasted on venison for several days, and then fasted, perhaps for a much longer period, until they could procure another such repast; in the interim, living on the roots of trees, wild berries, or any thing eatable they could procure.

We can trace, very readily, from such a sentence as this, the condition of a large portion of the inhabitants of our island, in the thirteenth century—they

must, in a great measure, have been *free from serfdom*, otherwise they would have been dependant on the soil where they were born, for a subsistence. A large number of the population, particularly agricultural labourers, must have gone from the soils on which they were born, and on which their forefathers had lived, into the large towns, probably for the purpose of enjoying greater personal freedom, or for earning more wages as operatives, than as tillers of the soil: inasmuch, as the woollen trade, with other profitable sources of labour, were more abundant in corporate and other towns, than in the surrounding country :* and there flourished, unless work in par-

* Our woollen manufactures must have been greatly assisted by the introduction of the teazle in their work, which was now introduced from Flanders;—at about this period, (Edward III.) the exportation of wool was prohibited, and the wearing of cloth by the natives, of any other than of English manufacture, was expressly forbidden by the legislature. Flemish artizans were encouraged to settle in this country, and to carry on their trade with liberty, and under the protection of the law:—a regular market or fair for the sale of their goods was established, and the tuckers, or woollen weavers, became an incorporated body—certain towns furnished particular coloured cloths:—Kendal was remarkable for its green—Coventry, its blue—Bristol its red. From this period may be dated the cultivation of the teazle in this country,—they are now extensively cultivated in some of the strong clay lands of Wilts, Essex, Gloucester, and Somersetshire—in which last county they are supposed to have been grown at a much earlier period, than in the other counties. The cultivation of this thistle, as an article of remuneration, is not very general in our day, as the success of a crop is very precarious, and is attended with a great deal of labour; the more industrious and thrifty of cottage labourers generally are the growers, and as the price varies from £4 to £22 the pack, it becomes an article of culture worthy their attention. They are generally imported, either from Holland or France, when the price is high in our own country—and is one of the rare indigenous productions of the island which is applied to manufacturing purposes. To supply a substitute has been attempted various times, without success: so that their use is indispensable in the manufacture of woollen cloth.

ticular lines became scarce, either from a want of money in the other portions of the community to purchase the necessary, artificial, or elegant parts of dress or furniture; or from a want of having an export market, where the superabundant articles might be disposed of. And this general maxim will apply now,—when customers cannot be procured to purchase the articles of dress, of furniture, of real want, of imaginary desire, of fashionable necessity, or of attractive elegance, as fast as the operative can manufacture them—then will a necessary stagnation of trade commence—the mechanic will begin to want employment—the artizan will in vain seek for labour, and the greater the number of the *purchasers are*, who are unable to pay, the *longer period* they are obliged to go without the manufactured articles they want, or the longer the *export market* is shut out against the manufacturer, or so long as other manufacturers can be found who can and will supply that foreign market at a cheaper rate, or with a better article for the same price, the greater and more appalling will be the distress which the suffering manufacturers of those particular species of articles will experience; and this will extend, if not remedied, to other classes, like fire extends on a train of gunpowder—which, when its end is just ignited, the whole will soon be in one continual blaze.

CHAP. IV.

STATE OF SOCIETY DURING THE THIRTEENTH CENTURY.

State of the poor in the fourteenth century—Power of the Pope—Agrarian population repair to the towns—Its effects—Disease—Persecution of the Jews—Acts of Parliament, to prevent the rise of wages:—to prohibit labourers from going from one part of the kingdom to the other:—to regulate dress.

But that the poor of the thirteenth century, and, indeed, not only of that period, but of the periods succeeding it, were in a very deplorable condition, may be proved from a variety of sources: we have seen, that large portions of the destitute were frequently fed by order of the reigning monarchs: these amounted to as many as 10,000 daily; but it need to be borne in mind, that the distribution of provisions, or providing individuals with the means of purchasing food, (*money*) among the destitute classes, is, at best, but a very unsatisfactory and uncertain mode of relief. At this early period, and for centuries after, the *monastic revenues* were liberally distributed to the necessitous; and as these hospitable buildings were extended from one part of the kingdom to the other, we may venture to judge, if history were silent on the subject, that the *destitution of the labouring classes* must have been *excessive*, as they required such extensive benevolence to supply their wants.

It must be borne in mind, that in no country in Europe were the exactions and encroachments of the

Roman clergy carried to a greater extent than they were in this island, although they distributed a *portion* of their ill-gotten treasure in feeding the destitute. The good nature of the people, and something, perhaps, of a turn for superstition* in their temper and habits, the relics of which even obtain, in our own day, concurred with the political circumstances of the country, in making England the great field of papal imposition and plunder.

Throughout this century, the bishoprics were filled either by the direct nomination of the Pope, or, what was equally equivalent, by his arbitration, in the case of a disputed election. The course that was taken by him in such matters, may be properly illustrated by the history of the succession of the Archbishops of Canterbury—the greatest papal dignitary in the realm. On the death of Cardinal Langdon, the chapter choose, as his successor, one of their own number, Walter de Hemesham; but both the then

* The agriculture of this period was in a very deplorable state: superstition operated on the farmer, so that he would not sow his seeds on certain unlucky days—ancient ridiculous customs, omens, and prognostics, were generally observed, which the most favourable weather could not induce them to forego:—the implements of husbandry also were generally inefficient for good farming operations, hence, indifferent crops were the result, frequently not more than six bushels an acre:—at this day, a horse-shoe may, in some farm-houses, be seen nailed to the lintel, to preserve the inmates from the incursions of the pixies, who were fancied sprights, which tradition, and probably priestcraft, had endued with supernatural power to do injury. Columella, a celebrated writer on husbandry, speaking of this period, says—"The best receipt against the depredation of the weavel, is, at the change of the moon, pull your beans before day-light when perfectly dry before the moon is full—thrash them, and the seed laid up in the granary will suffer no damage from the weavel."

king,* and the bishops of the province, having appealed to the Pope against the decision, this pontiff annulled it, and appointed Richard de Grand, of Weatherstead, Chancellor of Lincoln, to be Archbishop. It is said, by historians, that three successive elections were set aside by the sovereign pontiff, who compelled not only the chapter, but the king, to ratify the election of his choice. Another remarkable interference is recorded, that when Boniface died, in 1270, William Chillenden, their sub-prior, was elected by their chapter, but the Pope disannulled their election of that individual, and nominated Robert Kirwarby, and he became Archbishop. The right of nominating to inferior benefices, was seized in a more flagrant manner. The Pope carried his authority so far at last, as even to nominate Italian priests to the lucrative benefice of England, and these resided in Italy, and a large portion of their revenues was drawn from the monastic lands of this kingdom :—one of them is recorded to have drawn as much as seventy thousand marks yearly from the empire—a sum, at that time, greater than the entire revenues of the reigning monarch : and the *abuse* of this power was not only in giving the revenues of the monastic lands to a foreigner, and abstracting them from the kingdom, but it sometimes occurred, that one individual would be possessed of as many as *sixty or seventy livings*. And the *effect* of this evil, was not only in

* Henry II.

keeping from the natives the enjoyment of these church livings, but when they were so taken, the *necessitous poor* were deprived of their alms, and the parishes, in which these livings were so appropriated, were deficient of that spiritual consolation these benefices were originally designed to impart.

The Pope's authority seems, in the fourteenth century, to have been so absolute, that even kings and emperors were alike under its domination; and this was a source of increasing wealth to the reigning pontiff, as new monasteries and abbeys were continually in a course of erection, or additions made to those then in existence, by the gifts and bequests of the pious, to the landed property of the clergy. A law to prevent landed proprietors from bequeathing their estates to the nunneries, was now passed, and a restraint was put somewhat upon the disposition of the rich, to bestow their lands on the church.

In the thirteenth century, the clergy were in possession of *half the lands of the kingdom:* on which they erected churches, abbeys, and nunneries: while the landed proprietors built castles and mansions in great profusion,—and these must have given employment to the handicraftsmen and artificers of every description, who must have benefitted, as well as the labourers who assisted them: this may have been the first cause of enticing the agricultural labourers out of their districts into the adjacent towns, where, being crowded together, and not having sufficient clothing, or by living differently from what they had

been accustomed to, would be likely to produce epidemic diseases. Hence, we have it recorded, that a great plague visited the island about the middle of the fourteenth century. Historians assert, that its first appearance was in the northern part of Asia, and was similar, both in its deadly effects, and the suddenness with which its devastating ravages were committed, to the Asiatic cholera, whose dreadful effects were experienced by this nation a few years since. After ravaging northern Asia, it proceeded with its deadly effects to northern Russia, from which it travelled southerly into Europe :—it then passed across central Asia, by the Caraccas, from China, until it reached the Black Sea,—it desolated the borders of that large sea, and was conveyed, by ships, to Constantinople, the centre of commercial intercourse between Asia, Europe, and Africa. It was felt in Sicily, Italy, and France, where it committed dreadful depredations, passing through France, from Marseilles, to Calais, through England, and the continent of Europe. Its attacks were so sudden and so violent, that it destroyed a large proportion of the population of Europe,—England suffered very severely, losing, according to some historians, half its population. Dr. Mead says, the population of the island was reduced to 2,500,000. The pestilence raged very fatally in France, particularly in Avignon, the seat of the papal dominion in that kingdom—some, who were attacked by it, fell down and expired instantaneously, as if struck by an electric shock—few survived until the third day ;

whenever any one felt attacked by its virulent tumour, he gave up all hope of recovery, and only sought those consolations which religion can afford. The priest was sent for, and absolution obtained; and the poor sufferer, having his mind composed by religious resignation, gave himself up into the arms of death, and was soon released from his misery. Vessels were seen at sea floating before the wind, having no living soul on board—for all had been swept away by the destroying pestilence.

The blasphemous arrogance of the then Pope, Clement VI., might, at this period, be a subject of doubt, were not the fact attested by credible historians; he is said, by them, to have issued a bull, declaring that God had given him the whole empire of heaven and earth—and that he delegated this power to his priesthood.

The *moral effects* of this destructive malady, called the black pestilence, may be readily traced by its operations on the passions of mankind—selfishness, superstition, and fanatical excesses, were predominant in their minds; some ascribed the cause of this scourge to poison—others vented their spleen against their fellow-creatures. The jews became particularly the object of general detestation: this might probably arise from their not associating with the natives, or by their keeping themselves as a separate community, or, more probably, from their great riches, as they were, at that period, the most wealthy class in the community; thousands of these unfortunate beings

were exiled from the lands in which they had resided all their lives,—others were tortured, condemned, and burnt, frequently without a trial, and their wealth seized on by the ruthless hands of power. Twelve thousand of these unfortunate sufferers were burnt at Mayenne, in France, in a retreat, into which they had fled: they were pursued by the people, the magistrates, and even by the feudal lords—and by royalty itself. And in no part of Europe was an asylum offered them, except in Lithuania, where Casimer the Great granted them his protection: and this will account for the greater number of jews which are found in Poland, than in any other part of Europe, at this day.

This devastating pestilence, upon the whole, was favourable to the *improvement of the labouring classes*, inasmuch, as those who had escaped the devouring pestilence, were insufficient to discharge the ordinary duties of life; and to prevent the rise of wages above what the employer could afford to pay, an act of the legislature was passed, called *The Statute of the Labourers*, which, among other clauses, enacted, "That every man who laboured should be paid double the usual wages allowed five years before, to the great detriment of the lords and commons:" it then provided, "that in future, porters, ploughmen, plough-drivers, shepherds, swineherds, and other servants, should be content with such liveries, and wages, as they received two or three years before; and that in districts where they had been paid in corn, they should

receive corn or money, at the rate of tenpence a bushel, at the option of their employers; they were to be hired by the year, and other accustomed periods, and not by the day; weeders and haymakers were to be paid at the rate of one penny, mowers, fivepence per acre, or fivepence per day; reapers, during the first week in August, twopence per day, and from that time until the end of the month, threepence per day, without diet or other perquisites." Labourers of this description were enjoined to carry their implements of husbandry openly in their hands to market towns; and to apply for hire in a public quarter of the town.

By looking at the clauses of this act of parliament, we can very readily form an opinion of the state of the labouring *agricultural classes* at this period. Such an unjust interference on the part of the legislature, with the poor man's capital, *his labour*, might very naturally raise the indignation of the people to its highest pitch: but not only was it enacted, that agricultural labourers should not sell their own labour to the highest bidder, but even an act of parliament was passed to regulate their *dress*, and even *their diet:* and further than this, to prevent them from removing from one part of the kingdom to another without the sanction of magistrates, who had also the power, deputed to them by the same authority, of *altering* or regulating the wages of the labourer. An act was passed, about this time, to prevent artificers and servants with being provided, more than *once a day*, with

meat and fish, or the waste of other victuals, as milk and cheese, according to their station; and that they should wear cloth, of which the whole piece did not cost more than twelve pence per yard. The cloth of yeomen and tradesmen was not to cost more than one shilling and sixpence per yard. Carters, ploughmen, ox-herds, shepherds, and all other persons employed in husbandry, were to use no other kind of cloth but that called black russet, twelve pence per yard. Clothiers were commanded to manufacture the necessary kinds of cloth, and tradesmen to keep a sufficient stock upon hand, at the established legal price.

It can readily be inferred, from this description of the then legislative enactments, that the *aristocratic barons*, combined with the *rich commoners*, were united in endeavouring to keep down the growing spirit of freedom, which had now taken possession of the breasts of the labouring classes; hence, we can form a sufficient and reasonable opinion of the causes of those insurrections which took place among those classes against their despotic and arbitrary rulers.

CHAP. V.

THE MANUFACTURING MARKET.

The legislature attempt to regulate the manufacturing market—The folly and injustice of such enactments—Rent never subject to legislation—The more food is attempted to be regulated by acts of parliament, the dearer it becomes—Dissolution of the monasteries—The moral and social effects of their dissolution.

The legislature not only passed laws to regulate the price of labour, as we have noticed in the last chapter, but they actually endeavoured, by their acts of parliament, to regulate the *manufacturing market.* In 1307, Edward issued an order, prohibiting either coined money or bullion, to be carried out of the kingdom on any account. The merchants, therefore, who came from other countries, were now reduced to the necessity of either directly bartering their commodities for the produce of the kingdom, or, if they sold their articles for money, in the first instance, they were necessitated to invest the amount in other goods before they could be permitted to return home. This was a restriction so thoroughly opposed to every commercial principle, that it could not be rigidly maintained: for the very year succeeding its promulgation, an exemption from it was acceded to the merchants of France; and similar relaxations were afterwards permitted in other cases. But, although it could not, from its nature, be rigidly enforced, it remained on the statute book as one of the laws of the country, and

repeated attempts were made to secure its observance. The ignorance and misconception, from which such legislative acts emanated, are exhibited in a striking point of view, by the fact, that although the exportation of money and bullion was not allowed, the remittance, by bills of exchange, was not prohibited. It was not, however, very strange, that the evasion of such a prohibitory measure should not be immediately perceived by a class of men who were blind to all interests, except their own. Another of the ridiculous measures of the legislators of those days, was to fix the standard of measure for the length of every piece of cloth imported into the kingdom. A measurer was appointed by the king, who had to measure the pieces as they were imported, and if they were found not of the specified lengths, they were forfeited to the monarch. The dimensions fixed for striped cloth, were twenty-eight yards long, by six quarters wide; and for coloured cloths, twenty-six yards long, by six and a half quarters wide.

A regulation for a standard weight and measure was, at the same time, adopted; and this could not have been a very easy task, as the arts and sciences were in such an infant state: accordingly, we find, that Henry I. ordered, that a standard ell, or yard, should be the exact length of his arm—from which, as a unit, all other measures, and consequently all weights, might be very readily assimilated and adjusted. Another ridiculous act was passed about this time, to prevent forestalling; this statute con-

tains the following impassioned description :—" But especially be it commanded, on the behalf of our lord the king, that no forestaller be suffered to dwell in any town which is an open oppressor of poor people, and of all the commonality, and an enemy of the whole shire and country ; which, for greediness of his private gains, doth prevent others in buying grain, fish, herring, or any other thing to be sold, coming by land or water, oppressing the poor, and deceiving the rich ; which carrieth away such things, intending to sell them more dear ; the which come to merchants, strangers that bring merchandize, offering them to buy ; and informing them that their goods might be dearer sold than they intended to sell, and a whole town, or a country, is deceived by such craft and subtlety."

One might imagine, by such an act as this, that the legislators thought the forestaller purchased the articles of the producer, either entirely for his own use, or for destroying them, and preventing their being brought into consumption ; it seemed to have escaped their memory, that the forestaller bought the produce that he might retail it again at a profit for himself, or that he might retain it until a time of greater necessity would induce him, for the sake of his own profit, to dispose of it again, which is the legitimate object of all commercial transactions. If persons could not be found when articles are abundant, and consequently cheap, to purchase and lay them by until a time of scarcity arrived, and when

they were necessarily dearer, frequent famines must arise from a want of food, and many articles could only be procured at particular seasons. The forestaller is merely the JOSEPH, who, when abundance crowns the land, lays by the superabundant grain, that in a time of scarcity, his father JACOB and his brethren may not starve, but have a sufficiency of food. And it is very remarkable, that the statutes against regrating and forestalling, were only repealed so lately as the 12th of George III.

We have before noticed, that the legislature attempted to regulate the *price of labour:* we also see they have attempted to controul the buyers, and to prevent certain individuals from trading in such articles as their inclination, or their interests, induced them; we shall now show that they actually attempted, by legislative enactments, to fix the *maximum price of commodities*,—but, in the whole statute book, we cannot discover they ever attempted TO FIX THE MAXIMUM PRICE OF RENTS. An act was passed in the fourteenth century, for the purpose, it was said in the preamble, of relieving the people from the pressure of a severe famine—all articles of food were not to be retailed above certain prescribed prices. It was strangely forgotten, that the evil *did not lie in the high price*, for let the price be ever so high, the *rich* could always command an *abundance*, while the necessitous *poor* would naturally be *deprived* of a sufficient quantity. It was soon found, that food became more difficult to procure—the more its price was attempted to be regu-

lated by the legislators; for those who had it to sell, and could not obtain for it a remunerating price, withheld it, rather than dispose of it below what they considered its proper value. What was sold, was disposed of clandestinely at a price which violated the law, and which was made much higher than it otherwise would have been, by the trouble and risk which the illegality of the transaction involved:—butchers' meat disappeared altogether—poultry, an article of large consumption in those times, became nearly as scarce; grain was only to be had at enormous prices—the growers pretending they had none to sell—but which they sold privately to evade the law. The result was, that the king and the parliament repealed the law, after experience had taught them its futility.

But the destitution of the lower orders of society, must have been in a very deplorable condition about this time, inasmuch, as a very large number were obliged to subsist entirely by charity. It cannot be denied, however, that the produce of the monastic lands was considered the *legitimate right* of the destitute, and that the Romish clergy distributed their revenues to relieve their wants; and in addition to these eleemosynary gifts, the head officer, or tything-man, of every parish, was compelled, under a penalty of twenty shillings, to procure the collection of voluntary or charitable alms, that none of the poor of their parish be compelled to go a begging: these alms were collected on Sundays, holydays, and on the festivals of saints. "All ministers, in their collations, bedding

of the beads, confessions, and at the making of wills, were required to exhort, move, stir and provoke the people, to be liberal in contributions towards the comfort and relief of the poor, impotent, decrepid, indigent, and needy people, and for setting and keeping to work the able poor." Certain individuals among the poor were directed, every week, to go round the parish and collect from each householder his broken meat and refuse drink, for equal distribution amongst the necessitous: and precautions were endeavoured to be taken against the embezzlement of the parochial alms and doles, by the constables and churchwardens, by an infliction of fines and penalties for negligence. But to show even more clearly the complete destitution of the *rural population*, an act of parliament* divided beggars into two classes—the aged and impotent—and vagabonds, or idle persons who would not labour. The justices of the peace were empowered to license the first class to beg within certain limits, which they were bound not to exceed, for fear of punishment—their names were regularly registered, and read, and certified at the next quarter sessions after their registry. Begging without a license, or without the precincts assigned by magisterial authority, subjected the offender to imprisonment in the stocks for two days and two nights, during which time he was to be fed with bread and water only; able-bodied beggars, called vagabonds, were flogged

* 1530.

at the cart's tail, and then sworn to return to their place of birth, or to the place in which they had dwelt during the last three years, and there to labour.*

The fierce bigotry, and lustful avaricious disposition of Henry VIII, were, no doubt, the primary causes which operated on this monarch's mind, to induce him to get into his possession the monastic property. We have noticed, in a former chapter, that the incomes of the popish clergy exceeded the revenues of the reigning monarchs: and, on that account, they became either the more powerful auxiliary, or the most bitter enemy the reigning monarch had to contend with. It was thus with Henry, who, after having been living with his queen, Catherine, during eighteen years, in apparent conjugal affection, although she had been the wife of his elder brother—having fixed his lustful eyes on one of her maids of honour, Anna Boleyn, and finding no means of gratifying his desires, but by her marriage, found the clergy, with Wolsey at their head, to be his principal, nay, his only obstacle. He, therefore, determined to get rid of so powerful an

* Similar regulations, originating in like causes, took place on the continent. The emperor, Charles V. of Germany, published a long edict in the Netherlands against vagrancy, wherein it was declared, that the trade of begging created idleness, and led to bad courses; none, therefore, except mendicant friars and pilgrims, were permitted to beg, under pain of imprisonment and whipping. All poor persons who had resided in the provinces a whole year, were directed to remain in the places where they were settled, and were to share in the alms that were ordered them. Collections for this purpose were to be made at poor-houses, brotherhoods, and hospitals; and the magistrates were to collect alms in the churches and private houses once a week. Idlers and rogues were compelled to work.—*Anderson's History of Commerce.*

adversary; but, at the same time, he was anxious to appear apparently just, in his breaking up these religious establishments, and confiscating their immense revenues: circumstances, at the same time, favoured his object, by increasing the hatred of the people against the Pope, Clement VII. The episcopal cathedral, at Rome, was about being erected, and funds were deficient for carrying on the building, he, therefore, granted to the popish priests the power of selling pardons, absolutions, releases from purgatory, and other indulgencies, to the people of the different states of Europe, for sums of money, to assist in rearing this splendid building. The priests of English monasteries were, among the rest, the vendors of these blessings. The people, who generally have a very great antipathy, against those who are in better circumstances than themselves, readily seconded Henry's views in confiscating their possessions; and the aristocracy, who hoped to be benefitted by their dissolution, rather aided his efforts than opposed them; accordingly, we find that a commission was first appointed to report on the manner in which they were generally conducted; and this report, which, amongst other evils, showed them up in a most licentious point of view, was *apparently* made the foundation or cause of their overthrow. The first commission was dated October, 1535, and the commissioners, assisted by Cromwell, who had the confidence of Henry, as Wolsey had before he opposed, or rather would not, for fear of his master the Pope, second his views in

endeavouring to divorce his wife Catherine. (This Cromwell is described as a "dexterous and diligent man.") The commission was directed not only against all monasteries, but all collegiate churches, hospitals, and cathedrals, and also the houses of the order of the knights of Jerusalem. The object stated to be, was the reformation of the irregular lives of the monks.

The effect of this first commission, was the confiscation of the revenues of 376 monasteries to the king, by an act of parliament, and *he* became at once possessed of lands to the amount of £32,000 per year, together with their plate, jewels, and all other property, to the value of £100,000. This first confiscation was confined to all monasteries whose annual incomes was rated at less than £200 per year, although Burnet observes, they were worth many thousands: the practice being for them to raise heavy fines on their leases, and to keep their rents nominally low. The same historian quaintly observes, "that the commissioners were as careful to enrich themselves, as to increase the king's revenue.

In the succeeding year, Henry, having found his first confiscation so easy and profitable, ordered, by his parliament, a second commission for visiting the remaining monasteries. The monks, in many cases, anticipated the king's object, and voluntarily surrendered their monastic establishments, with all their lands, plate, jewels, and other valuable property, into his hands. "There were great complaints," the historian Burnet says, "made of the commissioners,

as if they had practiced with the abbots and priors to make these surrenders." The destruction of these monasteries was, no doubt, felt very severely in the localities in which they were situated, as they were the habitual resort of the distressed, who were regularly fed from the revenues of these establishments. But Henry's rapacity, when solicited to spare some of them in certain places, for the sake of the poor among his subjects, would submit to no such deduction from their plunder. By this latter visitation, in conjunction with the former, the possessions of 644 convents, 90 colleges, 2374 chantries and free chapels, and 110 hospitals, were annexed to the crown. The clear yearly value of all the houses thus suppressed, was, at the rents actually paid, only about £130,000, but their real value is stated to have been ten times as much. Besides this immense property, plate, jewels, and goods of all kinds, to a vast amount, were appropriated to the king's use, and replenished his exchequer, with the exception of about eight thousand pounds per year, which were distributed amongst the six bishoprics of Westminster, Oxford, Peterborough, Bristol, Chester, and Gloucester; and he substituted canons in the cathedral churches, when he displaced the monks.*

* The dissolution of the monasteries is a circumstance of great historical interest, and exhibits very clearly the holding of a great portion of the lands, as well as the tythes of the kingdom. It is well known, that the king had the sanction of the parliament for their dissolution, as well as the appropriation of their funds to his own use, so that they might not have to raise taxes for to support his extravagant habits; but many of the aristocracy were loud in their

The moral effects of the Reformation.

But the *moral, social,* and *commercial* effects of the reformation, may very easily be traced, by a comparison of the state of society before and after the destruction of the monasteries. Even the removal of a vast despotic authority, which enjoyed at least seven tenths of all the land in the kingdom, naturally opposed to all innovation, and linked in its sympathies and interests with the maintenance of every thing ancient and established, was favourable to the spirit of speculation and enterprise. The overthrow of such an institution, so venerable as the church, and which had hitherto kept down the whole national mind, and habits of thought and action, with so comprehensive and firm a grasp, was like the bursting asunder and passing away of all old customary bonds and inclosures, and throwing open to *all* the broad field of industrious energies. But the *effects* of the reformation on the *middle* and *lower classes,* may be readily inferred, by the history of the age in which it occurred. It must be recollected, that nearly the whole of the commerce of the country, before that era, was conducted by foreigners, and that a very

clamorous complaints against such robbery. Henry, therefore, to quiet their clamor, either gave some of their lands, with the tythes attached, to his favorites, or sold them much below their value; and this readily accounts for the number of lay impropriators at the present day, and for the great quantity of the soil which is now held as the right of a certain portion of the aristocracy. We can form a very clear idea of the price at which these monastic lands were disposed of, for the historian Rymer says, they were sold at twenty years purchase, and buildings at fifteen years purchase: their annual value was then nearly £150,000,—and according to the present price of land, their annual value is not less, according to Dr. Lengard, than £52,000,000.

No. 3.

large proportion of the necessitous poor was supported from the proceeds of the monasteries, which contained not less than fifty thousand monks, who were accustomed to lead an idle and useless life in these institutions, and who were now converted into state pensioners.

As the power of the monks was now annihilated, and the nobles were constantly lessening their number by their petty broils, the *middle classes* began, by increasing in wealth, through industrious habits, and an extension of commercial enterprise, to be a powerful body in the community. And many of the *working classes*, who had been accustomed to gain their livelihood in the monastic establishments, being compelled, by the destruction of these buildings, to seek employment in other quarters, soon found that their industry and intelligence were rewarded by a corresponding increase of wages: whilst the idle and dissolute, who had hitherto been accustomed to be fed and clothed in those institutions, when they were no longer extant, became a pest to society, as they were constantly committing depredations on their neighbours. Hence, we find *two* peculiar sorts of acts of parliament passed at this period—the *one* sort to prevent the *rise* in *the price of wages*—and *the other sort* to prevent pauperism.

CHAP. VI.

THE SOCIAL EFFECTS OF THE REFORMATION.

Prosperity of the new towns, Manchester, Birmingham, &c.— Monopolies injurious to commercial enterprise—The habitations, dress, and diet of the people —Social effects of the destruction of the monasteries—State of the labouring poor—Vagrancy.

Commercial and manufacturing industry had, during the reign of Henry VII., received great acquisitions from the competition between the native operatives and foreign artizans, who had been encouraged to settle in the kingdom, and to carry on their respective arts under the protection of the English laws. The natural result of such a state of things would be, an improvement in the circumstances and condition of the mechanic and labouring classes: with a gradual decay of the ancient burghs, and the flourishing of other important towns instead:—thus, we find the people of Manchester are spoken of as "well set to work in making of cloth, as well as of linen as of woollen, whereby the inhabitants of the said town have gotten and come into riches and wealthy livings: and by reason of great occupying, good order, strict and true dealing of the inhabitants of the said town, many strangers have resorted thither. But not only was the social state of the *town population* improved, but the country population—the *agricultural labourers* —was affected by this change. The woollen manu-

Birmingham an important town.

facture was, at that period, in a very prosperous state: and this will readily account for a large portion of the land of the kingdom being converted from tillage to pasture: and this prosperity was augmented by the extension of foreign trade, as well as by the power and inclination of the landed gentry, and by the growing wealth of the middle classes to furnish themselves, their families, and households, with better and more costly clothing than their forefathers had been accustomed to wear. The iron manufactory must likewise have been, at this period, in a very prosperous state. Birmingham is now quoted, by historians, as the seat of the iron trade. CAMBDEN remarks,—"that the woods were thinning away, by making such quantities of iron, at the same time the soil was more churlish to yield to the plough;" consequently, if large quantities of iron were made, a great number of individuals (puddlers) must have been employed to make it; and therefore, the internal, if not the export trade in iron, must have been very considerable.* After the dissolution of the monasteries, the kingdom appeared to progress rapidly in the manufacturing arts, notwithstanding the severities exercised on the religious com-

* A very singular circumstance occurs in all localities where iron mines abound. Coal mines are always near them, so that where one is found, the other is near. This is very remarkable in the neighbourhood of Birmingham: there the iron mines are abundant; and at a small town called Wednesbury, about seven miles from it, are vast mines of iron and coals. It is recorded, that the Romans, when they abandoned the island, regretted most of all the iron mines which they were leaving; and this metal is more valuable to a community than any of the other precious metals—silver or gold.

munity by the arbitrary, blood-thirsty, monarch. It would certainly have improved more rapidly, if the impediments which impeded its progress had been removed. Among the chief obstacles, may be mentioned the monopolies of particular articles, as iron, tin, paper, wool, salt, &c. &c., granted to favoured individuals: who, by virtue of their being the only parties allowed to sell, fixed the prices of their respective patented articles to suit their own avaricious convenience. Another powerful obstacle to the increasing extension of internal traffic, as well as its being a heavy burden on particular localities, was the situation of purveyor, whose business was to attend the king in all his travels, to travel before him, to provide from the resources of the towns and neighbourhood for his majesty's accommodation.

But the *social effects* of their destruction may be readily traced by a reference to the writers of the age, in the extension of trade and manufactures, and, consequently, in the prosperity and wealth of the different departments of industry. The increased rearing of sheep and of cattle, to meet the growing demand for wool and for butchers' meat: the inclosing of arable and waste lands, to fit them for pasturage and grazing: the disappearance of the cottiers: the decay of the old corporate towns: the rising importance, and increasing populations of other towns, where absence of corporate privileges permitted freedom for industry: the gradual rise of the country gentry: the growing prosperity and improving state

of the middle classes: the rise of wages of the labouring population, with an improvement in their modes of living—all evinced that the confiscation of the revenues of these buildings, into whose hands soever the property went, was a benefit to the various classes of the social state, inasmuch, as an increasing population, arising from the setting free of at least one hundred and fifty thousand persons from a state of idle celibacy, would naturally exert their energies in the various departments of agriculture and commerce. But it must be borne in mind, that although these were among the many other advantages conferred on the kingdom by their rapacious desolator, yet their destroyer and grasper never for a moment contemplated these results; but their destruction was the entire effect of *his rapacity*, caused by their opposition to his venial appetites.

The *social state of the labouring poor*, at this period, may be clearly illustrated, from a glance at their HABITATIONS, DIET, and DRESS. The habitations of the poor were little superior, in comfort and cleanliness, to the clay built hovels of the Irish at this day. The dwellings of the common people, says ERASMUS, had not attained the comforts of a chimney to let out the smoke,—the flooring, the bare ground; their beds, consisting of straw, amongst which was an ancient accumulation of filth and refuse, with a hard block of wood for a pillow; and such, in general, was the condition of the labourers throughout Europe at this period.

The wages of mechanics.

The *wages* of mechanics and labourers, were regulated by an act of parliament. Sir F. Eden states, that in the year 1500, the day wages of a mason were 4*d.*, and 2*d.* for diet; and that the price of two rabbits was $2\frac{1}{2}d$; twelve pigeons, 4*d.*; one hundred eggs, 6*d.* or 7*d.*; a chicken, 7*d*; a wether sheep, 1*s.* 8*d.*; a lamb, 6*d.*; an ox, 11*s.* 8*d*; an heifer, 9*s.*; from which we quickly infer, that the wages of mechanics were greater, in proportion to the price of provisions, than they are at present: for instance, a mason's wages were 6*d.* per day, with which he could purchase 100 eggs, whereas, with his wages now, 3*s.* per day, he can purchase only 72 eggs; and the price of corn in the same year, is recorded by the same author, to be 3*s.* 4*d.* per quarter: so that he could purchase more than a bushel of wheat with one day's wages—a corroborating proof of the same fact.

The *diet* of the people does not appear to have greatly differed from the present. In *cities*, meat entered into the general consumption of the inhabitants, but the food of *agricultural labourers* was of a very inferior kind; bacon is recorded as being used by them: and it is very probable they lived much on the same sort of food as labourers in the north of the kingdom lived during the last century, and as the Scotch peasantry do in the present, their food consisted chiefly of oat and rye bread, milk, and pottage. The substantial food, frequently alluded to by history and tradition, in the reign of Elizabeth, was limited to persons of rank. A dependant on the court of Eliza-

beth, perhaps, breakfasted on beef-steaks, but the ploughman was obliged to content himself on barley and rye bread, and water gruel.*

In speaking of the *dress* of the labourers of the age, Moryson observes, "Husbandmen weare garments of coarse cloth, made at home, and their wives weare gowns of the same cloth, kirtles of some light stuffe, with linen aprons, and cover their heads with a linen coyfe, and a felt hat, and in general their linen is coarse and made at home." The luxury of a linen shirt, was confined to the higher classes, and a number of articles which we deem essential, and are considered so by the poorest individuals, were unknown. Tea, coffee, and sugar, had not been introduced, and the manufactures were in so rude a state, as not to

* The superior condition of the people in our day, over that of their ancestors in the period alluded to, is indeed evident, from the above historical facts. But their superior comforts, at the present moment, as compared with their condition about a century ago, in the reign of George II., may not, perhaps, be so generally admitted; in fact, the changes in the *social* state of society, owing to the improvements in the mechanical arts, have been more rapid during that period than during any similar portion of our history. Charles Smith, the well informed author of the tracts on the corn trade, estimates, that of the six millions of people in England and Wales, in 1760, not fewer than 880,000 fed on rye bread. But at present, there are not 20,000 who eat that species of grain. Those who used to eat rye, now generally use wheat, and, except in the county of Durham, where a mixture of wheat and rye, called meslin, is eaten, the culture of rye is almost unknown. Nearly the same may be said of those who lived on barley. In the northern counties, at the middle of the last century, and during the reign of George III., very little wheat was used by the agricultural labourer. In Cumberland, the *principal families* used only a small quantity of wheat, about Christmas, for the crust of a goose-pie, with which almost every table in the county is furnished; and the crust was almost universally made of barley. But such food is seldom heard of even in the poorest houses in that county as barley bread. Nearly the whole population eat wheaten bread at all times of the year.

be able to produce many of those luxuries which we now consider indispensable. And, notwithstanding all that is said about the rude hospitality of that age, and of the consumption of ale and beer in those remote times, it is abundantly certain, that the labouring classes consume, in our day, a very much larger portion of malt liquor than the labourers did of those golden times.

But it cannot be denied, that although a large portion of the community was benefitted by the confiscation of the monastic revenues, yet a great number of the people, who had been regularly fed and clothed by the hospitality of the monks, were left in a dependant and destitute state, so that beggars and vagabonds, who had never been accustomed to work, became a pest to the surrounding neighbourhoods. Sir F. Eden, speaking of this latter class, says—"There are at least 100,000 vagabonds, who live without any regard to the laws of man or of God; they are not only a most unspeakable oppression to poor tenants, who, if they give not bread, or some kind of provision, to perhaps forty such in a day, are sure to be insulted by them: but they likewise rob many poor people who live in houses distant from any neighbourhood. These, when food was not to be procured by begging, would plunder, and consequently, if taken, would be punished by the legislature:" hence, Strype, an eminent justice of the peace in Somersetshire, says—"that in that district alone, there were, in one year, 35 robbers burnt in the hand, 37 whipped, and 183

discharged;" and HARRISON asserts, that in this reign no less than "72,000 great and petty thieves were put to death;" and even during the reign of Elizabeth, he adds, "that rogues were trussed up apace, and that there was not one year commonly wherein three or four hundred were not devoured and eaten up by the gallows, in one place and another. And in spite of these sanguinary punishments, the country, by being invested with robbers and vagabonds, who would not work, was in a state of dreadful turbulence." And the same writer observes, "there were at least 300 or 400 vagabonds in every county who lived by theft and rapine, and who sometimes met in troops to the number of sixty, and committed spoil on the inhabitants: that if all the felons of this kind were reduced to good subjection, they would form a strong army: and that the magistrates were awed by the association and threats of confederates from executing justice on the offenders."

We, therefore, naturally infer, that the Reformation was beneficial to all classes,—to the industrious, commercial, and manufacturing portion of the population, by removing the restrictions of popish seclusion, and by increasing the energies of the assiduous: to the poor, who depended on monastic benevolence for support, and even to the *indolent* and *vicious*, as it brought them under the subjection of the law, and compelled them to exert their energies for their own subsistence.

CHAP. VII.

THE POOR LAWS.

Increase of pauperism caused by the dissolution of the monasteries—Various acts of parliament to endeavour to provide a remedy—The important act of 43, Elizabeth—Its enactments—Comparative state of destitution—Work-houses erected.

THE history of the *poor* in England, as it is impressed on the pages of the statute-book, discloses many interesting views of the state of society during the sixteenth century. Beggary and mendicancy became a more formidable evil to the industrious classes than it had been antecedent to this time. It may not unreasonably be assumed, that the greater part of the beggary which at this period inundated the country, flowed from a want of relief by the dissolution of the monasteries, a large portion of whose revenues used to be bestowed in relieving the necessities of the distressed. But there exists a strong doubt in the mind of some historians* who have written on the state of society in this period, "whether the monasteries, generally, had greatly troubled themselves with relieving the poor who did not immediately belong to their own demesnes;" but the monasteries, by an indiscriminate relief of the destitute, were, in a great measure, the *cause of that destitution* which

* Sir F. EDEN'S *State of the Poor*, v. I. p. 95.

they relieved; inasmuch, as numbers of idle, dissolute persons, are always to be found, who will never work for their own maintenance, so long as they can be relieved by the industry of others. There was much vagrant mendicancy, however, in England, long before the Reformation, and so early as the middle of the fourteenth century, the evil began to engage the attention of the legislature.

The efforts of parliament to grapple with pauperism, from the beginning of the reign of Henry IV., were renewed very soon after the restoration of a settled government, under Henry VII. In 1495, an act was passed repealing the provisions of the act of 1388, which had directed magistrates to commit vagabonds to prison, on the ground "that the king's grace anxiously desired to reduce his subjects under obedience to the laws, by softer means than by such extreme rigour as that of the existing law against vagabonds and beggars, who were now accordingly ordered to be set in the stocks."* A clause that follows, is curious, as indicating the destitute condition of students at the universities, in this period: it enacts that "no man shall be excused for begging out of his hundred, except he be a clerk of one university or other, without he show the letters of his chancellor from whence he saith he cometh."

The evils of vagrancy continued to increase, notwithstanding all the laws which were enacted to pre-

* Henry VII. stat. 2, cap. 3.

vent them, until at last the legislature were compelled to grapple with the danger by stringent enactments, which *enforced labour on the mendicant, as an equivalent for his relief.**

But, before a compulsory rate was enacted for the relief of the poor, the legislature seems to have tried a variety of expedients, for the purpose of raising funds for them. Fines were levied for profaneness and immorality; churchwardens were empowered to levy twelve pence upon every parishioner who omitted going to church on Sunday;† half the penalty for not wearing a woollen cap on a Sunday;‡ one-third of the fines for saying mass, and other offences against the established worship; penalties for swearing, tippling, and disorderly conduct on the Lord's day. But all

* In 1535 it was acknowledged in the preamble of a new act, "that the act passed five years before was defective, forasmuch as it was not provided in the said act how, and in what wise, the said poor people and sturdy vagabonds should be ordered at their repair and at their coming into their countries, nor how the inhabitants of every hundred *should be charged* for the relief of the same poor people, nor yet for the setting and keeping in work and labour of the aforesaid valiant vagabonds."—(Henry VIII. stat. 27, cap. 25.) "Idleness and vagabondry are the mother of all thefts, robberies, and all evil acts, and other mischiefs, and the multitude of people given thereto, hath always been here within this realm very great, and more in number as it may appear than in other regions; the which idleness and vagabondry all the king's highness' noble progenitors, kings of this realm, and this high court of parliament, hath often and with great travail gone about and assayed with godly acts and statutes to repress, yet until this our time it hath not had that success which hath been wished; but partly by foolish pity, and many of them which should have seen the said godly laws executed, partly by the perverse nature and long accustomed idleness of the persons given to loitering, the said godly statutes hitherto hath had small effect."—(Edward VI. Stat. I, Cap. 3.

† 1588 ‡ 1570.

the means hitherto adopted for the relief of the poor, being inefficient, the memorable act of 43rd Elizabeth was passed, which embodied the wholesome provisions of former acts, and is the foundation on which subsequent enactments are framed, particularly the act called *The New Poor Law Act*, of our own day. The outlines of this act of Elizabeth, were—1, setting the children of the poor to work; 2, putting poor children out apprentices; 3, setting the idle to work; 4, purchasing raw materials for that purpose; 5, raising, by an assessment, a sum of money for support of the old, lame, impotent, and blind, and such as are unable to work from infirmity and other causes, and to pay for the materials; 6, appointing two overseers, in addition to the churchwardens, to carry the act into execution; 7, authorising justices to appoint the overseers. Nothing can appear more excellent in theory, than the system thus established by this act of parliament; and had its provisions been regularly attended to, the nation could, since its having passed, been burdened only with the support of the *aged*, *infirm*, *orphans*, and such as misfortune has reduced to destitution: but experience has shewn, that no provision contained in this statute has been attended to, in the letter or spirit, except the *raising of money by assessment*, which has always been punctually attended to from year to year, until the rate has increased to £6,009,564, in the year 1841, on a population of 15,911,725. When this bill was first enacted, the sum raised was about £200,000,—the population

being about 5,000,000. Nothing can show the *destitution and poverty* of a large portion of the population so clearly, as a reference to the above figures. It appears, that at the passing of this act, one in fifty was receiving parish relief; whereas, in 1841 and 1842, by calculating the value of money now to be four times as much as it was in 1601, one in twenty-one receives parochial assistance: or, pauperism is as much again now as it was in Elizabeth's reign!!!*

It is not, therefore, the system, but the carrying into effect, the poor law of Elizabeth, that has proved so defective; and it is justly observed by Judge Blackstone, in his *Commentaries on the Laws of England*, "that the further all subsequent plans for maintaining the poor have departed from the original design, the more impracticable and even pernicious those visionary attempts have proved; nor could any thing short of prophecy have foretold, at the commencement of the seventeenth century, that in consequence of these apparent wise regulations, the poor rates would have reached three million pounds sterling yearly."

* Suppose each individual requires £8 per year for a maintenance, £6,000,000 will support 750,000 persons, which can now be supported out of the parish rates: and 15,911,725 persons to £750,000, is as 21 to 1, or 1 person in every 21 is a pauper now. In 1601, at the time of passing the above act, £200,000 were raised, by parish assessments, on a population of five millions; and supposing money to be four times as valuable now as it was then, which is probably correct, as a mechanic then used to earn ninepence per day, the sum of £200,000 raised in 1601 will equal £800,000 of our money, and £800,000 divided by eight would support 100,000 paupers at that time; and five millions is to one hundred thousand as 50 is to 1: or, we have twice as many paupers, in proportion to the population now, as there were then – a most lamentable fact!!!

Workhouses erected.

An important change was made in the general management of the poor in the reign of George I., by the erection of workhouses, in a great number of parishes, in virtue of the powers conferred by an act passed in 1723, which also amended the law, by providing, that no justice of the peace should make any order for relief until oath should be made before him of some matter which he should consider to be a reasonable cause, and until the party had made application, without success, to a vestry, or to two of the overseers. Most of the workhouses were projected, and the management of the poor in them contracted for, by Matthew Marryott, of Otney, in Buckinghamshire; and the effect, in most cases, for some years, was a very considerable reduction of the rates: "but," says Sir F. Eden, writing in 1797, "from comparing the present state of these parishes which erected workhouses, in consequence of this act, with their condition seventy years ago, it would seem, that the expectations entertained by the nation, that great and permanent benefits would be the result of these establishments, have not been realized." From the details which he places before his readers, respecting many of the parishes which adopted workhouses about this time, it will appear, "that the charge of maintaining the poor has advanced very rapidly, notwithstanding the aid of the workhouses, and, perhaps, as rapidly as in those parishes which have continued to relieve the poor by occasional pensions at their own habitations."

In the first operation of the workhouse and contract

Model workhouse at Bristol.

system, however, there can be no doubt, that large savings were effected, by the economy of purchasing on a large scale, and still more, by the reduction of the number of the paupers, that was brought about partly by the aversion of the poor to the confinement and discipline of the workhouse, and partly by the more careful inquiry that was now made as to settlements. In the original establishment at Bristol, according to the narrative published by CARY, one of the managers, an hundred girls were set to work in spinning worsted, and were supported at a cost of 1*s.* 4*d.* per week for each: their diet being, he says, "made up of such provisions as were very wholesome, afforded good nourishment, and were not costly in price, namely—beef, peas, potatoes, broth, peas-porridge, milk-porridge, bread and cheese, good beer, (such as we drink at our own tables) cabbage, turnips, carrots, &c., in which we took the advice of our physician, and bought the best of every sort."

The principle, however, upon which this establishment was founded, of attempting to make the paupers work for their maintenance, had, in a few years, to be abandoned, after the attempt to carry it into effect had involved the concern in a debt of some thousands of pounds.*

* In the parish of Kinton, the population of which is 735, the rates are now £200 a year. There was one year in which they were nearly £1000; at that time, one of the farmers paid, in poor-rates, £100 in the year, and that farmer died in poverty. THOMAS SPENSER says, he was present at his death—his widow and children were left destitute. In some parishes, the poor-rates exceed the rental; and in one parish, the farmers gave up their farms, and the landlords

The amount of the poor-rates, and the numbers of the parish poor, went on increasing throughout the reigns of George II and III; and various plans were proposed, from time to time, for checking the evil, none of which, however, received the sanction of the legislature. Sir F. Eden has detailed the leading provisions of several schemes, suggested by W. Hay, Esq. M.P. for Seaford, in his *Remarks on the Laws relating to the Poor, with Proposals for their Better Relief and Employment*, published in 1735, with a variety of others, in the next two or three years; but not much information, however, as to the actual circumstances of the poor and labouring classes, is to be gathered from these well-intended speculations.

The *increase of the population*, combined with *sudden changes* either in the *manufacturing arts*, or in the usual employment of artificers, by their being thrown suddenly out of their accustomed employ, are, in a great measure, the causes of the distress of a large portion of the people, frequently when distress is not brought and retained on themselves by their vices, their indolence, or profligate habits. Disease, sickness, or death, may sometimes be the cause of *pauperism*, *destitution*, and *misery;* it was thus in the year 1603, when a pestilence visited the metropolis, and swept off 36,000 persons; and in about twenty years after, about the same number perished, causing

their estates, into the hands of the paupers; yet, with the land in their possession, they could not maintain themselves, but a rate was made upon neighbouring parishes for support.—*Rev. T. Spenser on the Poor Law.*

by its ravages, *sudden poverty and mortality:* in 1636, not less than 10,000 died; and in 1665, the frightful number of 68,596. The destruction of capital, and the sinews of industry involved in these terrible disasters, had a powerful influence on the progress of the country during the succeeding century. Population increased very sparingly until the year 1780. From the survey made to meet the Spanish invasion, in 1575, the whole population of the kingdom was then estimated at four millions and a half. According to the enquiries of Mr. RICKMAN, it amounted to about five and a half millions, in 1700; in the next fifty years, it increased to six and a half millions: but in the succeeding fifty years, that is, from 1780 to 1831, it increased from 7,953,000 to nearly fourteen millions.

Although the population has increased progressively since the time of the Stuarts, *improved modes of agriculture* have kept pace with growing numbers, and the introduction of foreign roots, fostered by fertilizing manures, have evinced the fact, that as population abounds, the modes of sustaining animal life abound likewise.* Subsistence is the true and only standard

* As an illustration—the progress of the cultivation of potatoes may be interesting:—they are indigenous in Chili, in South America, and the first notice taken of them by any European writer, is by the German botanist CHISEUS, who, in 1588, while residing in Vienna, received a present of two of the bulbs, from Flanders, under the name of *taratouflis*, of which there is a plate among his rare plants; the next mention of it is by GERARD—that specimens were sent from Virginia, and planted in his garden, near London, in 1597; they are, however, said to have been carried into Ireland by Sir W. RALEIGH, on his return from America, in 1586; and we are told, in DE BRY'S collection, that they are good

of population, while *agriculture* is obviously the only genuine source of support. Food is the legitimate offspring of agriculture; and the more productive the soil is, the greater the advantage to the community, while the prosperity and happiness of the rural population may be evidenced, by the benefits they collaterally impart to the manufacturer. Agriculture is, therefore, of moment, in the prosperity of manufactures: and, consequently, in the welfare of the kingdom. But the advantages resulting from manufactures, commerce, arts, and sciences, are unquestionably highly beneficial even to *agriculture* itself; but these benefits

food, either boiled or roasted, and are called by the Indians, *openawk*. It appears, by tradition, that the roots were planted by Sir WALTER, at his residence, near Youghall, which is still standing, and they were soon afterwards found so useful in some disastrous seasons, when famine threatened, that they became generally cultivated in most parts of the island. Here, however, their progress was so short, that we find them mentioned, in 1619, as one of the articles provided for the queen's table, at a price of 2*s*. per lb.; and they were, for a long time, only grown as delicacies, in the gardens of men of fortune; indeed, more than a century elapsed before they were much noticed; for, although they were brought before the public as an object of national importance, at a meeting of the Royal Society, held in March, 1663, yet they were not included in the list of vegetables described in *The Complete Gardener*. In whatever way they were brought into general cultivation, they may be justly considered as the most valuable esculent root with which we are acquainted; for, whether regarded as the food of man or beast, their adaptation to almost every variety of palate and constitution, renders them universally welcome. We cannot allow what COBBETT imputes to them, that they produce pauperism by their habitual use, and illustrates his assertion by saying, that the peasantry of Ireland are paupers from eating potatoes: but in this country, where they only come in as a substitute for other food, they add materially to the comforts of the working classes, and they cannot be considered in any other light than as a national benefit. The place that this root now takes in the sustenance of the people, is oatmeal and beans, or pulse meal, applied as gruel. According to an old proverb—"her ladyship breakfasted on roast beef, but the ploughman regaled on water gruel."

are too dearly purchased, when obtained at the expense of the agricultural population: so that one cannot suffer without all being affected.

The precarious production of the crops, in affording food for man, and for cattle, make it indispensable, in many years, to have recourse to a large importation of grain; and this will be necessary whenever the country is not benefitted by a good harvest.* But there is no doubt, as improved modes of husbandry are adopted, and the *tillers of the soil* cast away their *prejudices* for ancient modes of horticulture, and, like other reasonable men, adopt the improvements which new manures, and improved methods of farming, produce, the soil will be more productive than it hitherto has been, and we may become, instead of an importing, an exporting country, as we were heretofore.

An impression appears to be entertained, by a large portion of the community now, that population is increasing faster than *funds for its employment*, or *food for its support*, and that increased destitution, and consequently a larger proportion of *pauperism*, will be every year produced. The same fears were entertained by our ancestors in the beginning of the

* The quantity of corn necessary for the support of the present population, is about fifteen millions of quarters, which the country does not produce in a bad harvest; consequently, then a large importation becomes indispensable, and prices run high—hence the *poors' rates* increase in amount, owing to the wages of the *mechanic* and *labourer* not being equal to provide himself and family with sufficient sustenance—and the privations of the industrious are increased—hence dearness of food produces extensive ruin of manufacturers, and merchants, a declining revenue, and an intense suffering among the working classes.

seventeenth century, and, as a consequence, acts of parliament were passed to endeavour to prevent it. Buildings were forbidden to be erected, unless each had four acres of ground attached; no new buildings were permitted to be built in London, nor within three miles of the city gates; and not more than one family was allowed to occupy a dwelling; and Charles I. issued a proclamation, against building houses on new foundations, either in London or Westminster, or within three miles of the city, or of the king's palaces, as such proceedings would multiply the inhabitants to such an excessive number, that they could neither be *governed* nor *fed*.* But as the introduction of foreign seeds, roots, and grain, and the energy of the farmer to meet the pressing demands of his landlord, produce now a much greater quantity of food than used to be raised on the same portion of land in times past, so improvements will continue to progress, to keep pace with the increasing state of the population. Our ancestors would have been somewhat incredulous, had they been told that London alone would contain more than a third part of the number of inhabitants that England contained in the time of Elizabeth. †

* Charles I. 1630.

† James I. attempted to prevent an *increase of population*, by issuing a proclamation to masters of vessels, not to convey any persons into London who had not the means of maintaining themselves; and was desirous to colonize the waste lands of Scotland, by inducing the poor of the metropolis to emigrate thither.

CHAP. VIII.

THE INFLUENCE OF MALT LIQUOR AND ARDENT SPIRITS.

History of the produce of malt—Consumption of malt liquors—Gin—Acts of Parliament to prevent drunkenness—Letter of Sir R. Walpole—The magistrates attribute crime to drunkenness—Sir J. Jekell's resolutions in the House—Distilleries cause distress.

THERE can be no doubt, indeed, that the consumption of malt liquor has declined, in this country, within the last century and a half; one obvious cause of the change, whatever others may have operated, being the extending substitute of tea and coffee,—beverages which were scarcely known to the mass of the people, at the date to which KING's calculations refer, (who wrote on the subject of drunkenness.) According to a table given in the *Tracts on the Corn Laws*, the average quantity of malt made for home consumption was, from 1703 to 1713, 2,959,063 quarters; from 1713 to 1723, 3,542,157 quarters; from 1723 to 1733, 3,358,071 quarters; from 1733 to 1743, 3,215,094; and from 1743 to 1753, 3,404,026 quarters. Even supposing the population to have remained stationary, this account would show no increase in beer drinking, but rather the reverse, in the forty years from 1713 to 1753. But any abatement that might take place in the attachment of the people to their old national beverage, was, if we may believe the writers of the time,

abundantly made up, in the cases of some portions of them at least; for we must have some charity for many, that were not so infatuated by the passion that had seized them for the novel stimulant of ardent spirits, in the shape of gin.* It was towards the close of the reign of George I., that we first hear much of the excessive gin-drinking of the populace of our great towns. From about that date, we have a succession of wholesome observations, by the grand juries of Middlesex, against the practice;—which they call upon the authorities and the legislature to put down, as the *great source* of the *crimes* which came before the courts of law, as well as one of the *main causes* of the *general poverty* and *wretchedness* of the *lower orders:* but it was not until the year 1736, that the evil forced itself upon the notice of parliament. Smollet's somewhat rhetoritical description, without being taken quite according to the letter, may give us a notion of the height to which it had risen by this time:—

"The populace of London," he writes, "were sunk into the most brutal degeneracy, by drinking to excess the pernicious spirit called gin, which was sold so cheap, that the lowest class of the people could afford to indulge themselves in one continued state of intoxication, to the destruction of all morals, industry, and order. Such a shameful degree of profligacy prevailed, that the retailers of this poisonous compound set up painted boards in public, inviting people to be *drunk* for the small expence of *one penny:* assuring them they might be *dead drunk* for *twopence*, and have *straw for nothing*. They, accordingly, provided cellars and places strewed with straw, to which they conveyed those wretches who were overwhelmed with intoxication. In these dismal caverns, they lay until they recovered some use of their faculties, and then they had recourse to the same mischievous potion: thus consuming their health, and ruining their fami-

Complete History of England, 4to edition of 1738, v. 11, p. 638.

lies, in hideous receptacles of the most filthy vice, resounding with riot, execration, and blasphemy." *

That all this may have happened, is probable enough: what alone is of much importance, is the extent to which such corruption of manners prevailed amonst the lower orders, or the progress the habit of intemperance was making throughout that portion of the social body. If gross, it was confined to the very lowest grade of the populace; their conduct, like that of the drunken Helots amongst the Spartans, might be more likely to disgust, than to seduce the rest of the community.† However, this was not the general feeling at the time; the cry of all the more zealous and busy philanthropists was, that the poison of gin-drinking was eating into the very vitals of society, and that no measures could be too strong to take against an evil which, if its progress was not arrested, would speedily leave us nothing but the mere dead and putrid carcase of a once great nation. It was under the excitement of these alarms, which, it may be fairly assumed, somewhat exaggerated the danger, that the legislature was called upon to act. On the 20th of February, 1736, a petition of the magistrates of the county of Middlesex, was presented to the House of Commons, setting forth—

"That the drinking of gin, and other distilled spirituous liquors, had some years past greatly increased, especially amongst the people of inferior rank; and that the constant and excessive use thereof, had already destroyed thousands of his Majesty's subjects, and rendered great numbers of others unfit for useful

* Sir F. Eden's *State of the Poor*, v. 3, p. 83.

† Sir F. Eden's *State of the Poor*, v. 3, p. 83.

Sir Joseph Jekyll's resolutions.

labour and service, debauching, at the same time, their morals, and drawing them into all manner of vice and wickedness; and that, that pernicious liquor was then sold, not only by the distillers and gin-shops, but by many other persons of inferior trades, by which means, journeymen, apprentices, and servants, were drawn in to taste, and by degrees to like, approve, and immoderately to drink thereof: and that the petitioners apprehend the public welfare and safety, as well as the trade of the nation, would be greatly affected by it; and therefore, prayed, that the House would take the premises into their serious consideration, and apply such remedy as the House should judge most proper."

Three days after, in a committee of the whole house, Sir Joseph Jekyll moved a series of resolutions, declaring, in substance, that the low price of gin was the principal inducement to the excessive and pernicious use of it: and that the sale of that and other spirituous liquors ought both to be discouraged by a heavy duty, and restricted to persons keeping public brandy-shops, victualling-houses, coffee-houses, ale-houses, and inn-keepers; and to such apothecaries and surgeons as should make use of the same by way of medicine only. These resolutions were agreed to without debate; but when, on the 8th of March, Jekyll moved, in a committee of supply, that there should be laid upon all spirituous liquors sold by retail, the prohibitory duty of 20*s.* per gallon, the proposition encountered some resistance. Pulteney urged, among other things, that the business of distilling had been carried on in the country by royal authority, for nearly one hundred years, and had been much encouraged by various acts of parliament passed since the revolution: that even the retail of spirits had been hitherto so much encouraged, or at least, connived at: that with respect to rum, there never had been any complaint of the excessive use of that

liquor amongst the lower classes of the people, which easily might be made more palatable than any sort of home made spirit; and, therefore, the non-consumption of these liquors, in any excess, appeared to be completely ensured merely by the existing duties on them, which were high, though far from prohibitory. W. PULTENEY then alluded to a recent act, which imposed certain high duties upon gin also, but which had been repealed:—

"It cannot be said, Sir," he proceeded, "that nothing but a total prohibition can be an effectual remedy against the evil complained of, because we all know, that the late act against gin was effectual so far as it went: it was made, we know, to extend to only compound spirits: and with respect to them, it was an effectual remedy, for it put an entire stop to the constant and excessive use of such spirits amongst those of inferior rank; but some of the distillers immediately began to make a sort of plain spirit, which, I believe, in derision of the act, they called parliament brandy, and this the common people made as constant and excessive an use of, as they did before of the compound spirits: this was the case with that act; and if it had been amended, and made to extend to all home made spirits, instead of being repealed, there would never have been occasion for any such complaint as that we have before us."

The act here alluded to by PULTENEY, which has not been noticed in the common accounts of this gin legislation, appears to be the 2nd George II. c. 17, passed in 1729, entitled, "An Act for Laying a Duty on Compound Spirit or Waters;" it was repealed in 1733, by the 6th George II. c. 17, on the alleged ground, that it had not answered the good purposes thereby intended, and had proved a discouragement to the distillation of spirits from corn in Great Britain. Neither PULTENEY's speech, nor the silent, but perfectly understood, dislike of the minister himself, Sir R. WALPOLE, to the proposition, prevented JEKELL's

resolution from being agreed to by the house, or from being followed up by another, recommending that the sum of fifty pounds, yearly, should be paid for a license, by every person keeping a public brandy-shop, a public victualing-house, coffee-house, or ale-house, or being an inn-holder, who should sell any spirituous liquors. A bill was accordingly brought in, founded on these resolutions; and, notwithstanding the opposition made to it, principally by the West India interest, was eventually passed into a law.*

Archdeacon Coxe has printed the following curious letter, from Sir R. Walpole to his brother, Horace, written on the 30th September, (o.s.) the day after the new law came into operation, which, as a lively picture of the state of public feeling, and of the general civilization of the time, well deserves to be transcribed :—

"Dear Brother,—I have forborne troubling you with the various surmises and apprehensions which of late, at different times, had filled the town with many fears and expectations concerning the first and immediate consequences that might attend the commencement of the gin act, because it was difficult, at some times, to form any probable opinion of what might happen: and, at other times, and especially lately, it appeared a great deal more reasonable, that there would not be any trouble or disorder at all, until about the middle of the last week. I then began to receive again accounts from all quarters of the town, that the Jacobites were busy and industrious in endeavouring to stir up the common people, and make an advantage of the universal clamour that prevailed among the populace at the approaching expiration of this darling vice. The scheme that was laid, was, for all distillers that were able to give away, *gratis*, to all that should ask for it, as much gin and strong waters as they should desire, and the great distillers were to supply all the retailers and small shops with as much as they should want, to be distributed and given away in like manner: the shops were to begin to be opened on Tuesday evening, the eve of Michaelmas

* 9th George II. c. 23.

Sir R. Walpole's letter.

day, and to be continued and repeated on Wednesday night, that the mob, being made thus drunk, might be prepared and ready to commit any sort of mischief; and in order to this, anonymous letters were sent to the distillers and town retailers in all parts of the town, to instruct them, and incite them to run and join their friends, and do as their neighbours did. Four of these letters have fallen into my hands, which the persons to whom they were directed, discovered and brought to us; and, by the excise officers that go round the town, I am informed that letters to the same purpose were dropped and directed to most of the distillers in all quarters. Those we have seen, differ very little from each other in the tenor and substance; and the strong criminal expressions are in all the same, only transposed. In such as were less formal, and not so laboured, the word was given Sir ROBERT and Sir JOSEPH. Upon the information, the QUEEN was pleased to give such orders to the guards, as you will have had an account of, which have had the desired effect, and in the opinion of all mankind, are thought to have prevented the greatest mischief and disorders that have of late been known or heard of; at least, we have the satisfaction to have our measures universally applauded. I must beg leave to say, there has been infinite care taken to observe and watch all their motions for about a month past; and upon the turn that the Spitalfields riots took, I think I may affirm, that the whole spirit was at once dashed, and seemed to have been totally laid aside; but upon the contrary success at Edinburgh, the fire kindled anew, and nothing less than such vigorous measures could have prevented the evil, which I hope now is put an end to. But the murmurings and complaints of the common people for want of gin, and the great suffering and loss of the dealers in spirituous liquors in general, have created such uneasiness, that they well deserve a great deal of attention and consideration; and I am not without my apprehensions, that a non-observance of the law, in some, may create great trouble; and a sullen acquiescence and prudent submission in others, in hopes of gaining redress by parliament, may lay the foundation of every riotous and mobbish application when we next meet." *

Within a few months after it had passed, TINDALL tells us, the commissioners of excise themselves became sensible of the impossibility, or unadvisableness, of carrying it rigorously into execution :—

"Policy, as well as humanity," says the historian,† "obliged them to mitigate the severity of the law, which was now become odious and contemptible."

* COXE's *Memoirs of the Life and Administration of Sir R. Walpole*. v. 3. p 360.

† SMOLLET's *Complete History of England*.

Sir R. Walpole on the law against gin drinking.

Smollet, who has drawn so dark a picture of the state of things the act was designed to put down, has painted, in colours equally strong, the mischiefs which it produced :—

"The populace," he writes, "soon broke through all restraint, though no licenses were obtained, and no duty paid, the liquor continued to be sold in all corners of the streets; informers were intimidated by the threats of the people; and the justices of the peace, either from indolence or corruption, neglected to put the law in execution. In fact, in the course of time, it appeared," he adds, that the consumption of gin had considerably increased every year since those heavy duties were imposed."

Under these circumstances, in 1743, the ministry that had newly come into office, upon the expulsion of Sir R. Walpole, brought in a bill into the House of Commons, for the repeal of the law, which had turned out worse than a dead letter: the bill passed the Commons without opposition; but in the upper House, it was not carried until after warm and long altercations.

From the debates, which fill nearly three hundred columns of the parliamentary history, we may glean a few additional particulars, touching the working of this act. The *increased consumption of gin*, during the time it had been in force, was admitted on all hands: Lord Lonsdale himself, one of the opponents of the repeal bill, produced an account, from which it appeared, that the quantity of gin distilled in England, which in 1684, when the business was introduced into this country, had been 527,000 gallons, had risen to 948,000, in 1694; to 1,375,000, in 1704; to 2,000,000, in 1714; to 3,520,000, in 1724; to

4,947,000 in 1734; and to not less than 7,160,000, in 1752.

Lord BATHURST, who was in favour of the repeal, mentioned, that in the whole kingdom, during the seven years the high duties had been in force, the number of licenses taken out for the sale of spirits, had been only two!! Thus, we may judge how very inadequate the law is, to subjugate the unruly passions of man, when allowed to break from the true Christian maxim of avoiding the appearance of evil. The account, from whence this is taken, gives a still more deplorable description of the degraded state our poor are allowed to be in, not only in England, but in Ireland to a much worse degree:—

"Even the very commencement of the law," said Lord CHOLMONDSLEY, exposed us to the danger of a rebellion—an insurrection of the populace was threatened—nay, the government had information of it, being actually designed; they very wisely ordered the troops to be drawn out and posted in the several places where the mob was likely to assemble, which, perhaps, prevented a great deal of bloodshed, and the law began to be executed without any forcible opposition. As there were multitudes of offenders, there was presently plenty of informations; but as soon as any man was known to be an informer, he was assaulted and pelted by the mob wherever they could meet with him. A noble peer was obliged to open his gates to one of these unfortunate creatures, in order to protect him from the mob, who were in full cry, and would probably have torn him to pieces if they could have laid hold of him, for they had before actually murdered some of these informers. This was not the only difficulty; the magistrates themselves were in danger, if they appeared zealous in the execution of this law. The prosecutions were vastly expensive; and when the person was convicted, seldom anything could be recovered; so that it put the government to an infinite expence."

"It is well known," said Lord BATHURST, "that by that law, the use of spirituous liquors was prohibited to the common people; that retailers were deterred from vending them, by the utmost encouragement that could be given to informers; and that discoveries were incited by every art that could be practised, and offenders punished with the utmost rigour. Yet, what was the effect, my

Lord Bathurst's observations.

Lords, of all this diligence and vigour?—A general panic suppressed for a few weeks the practice of selling the prohibited liquors; but, in a very short time, necessity forced some, who had nothing to lose, to return to their former trade; they were suffered to escape, because nothing was to be gained by informing against them; and others were encouraged by their example to imitate them, though with more secresy and caution: of those, indeed, many were punished, but many more escaped; and such as were fined, often found the profit more than the loss. The prospect of raising money by detecting their practices, incited many to turn information into a trade: and the facility with which the crime was to be proved, encouraged some to gratify their malice by perjury, and others their avarice; so that the multitude of informations became a public grievance, and the magistrates themselves complained, that the law was not to be executed. The perjuries of informers were now so flagrant and common, that the people thought all informations malicious; or at least, thinking themselves oppressed by the law, they looked upon every man that promoted its execution as their enemy; therefore, they now began to declare against informers, many of whom they treated with great cruelty, and some they murdered in the streets." *

Lord BATHURST proceeded to state, that by their violence, the people at last worried out the magistrates, and intimidated all persons from lodging informations, so that the law had now for some years been totally disregarded:—

"The practice, therefore," said his Lordship, "of vending and of drinking distilled spirits, has prevailed for some time without opposition; nor can any man enter a tavern or an alehouse, in which they will be denied him, or walk along the streets without being incited to drink them at every corner; they have been sold for several years with no less openness and security than any other commodity; and whoever walks in this great city, will find his way very frequently obstructed by those who are selling their pernicious liquors to the greedy populace, or by those who have drunk them, until they are unable to move."

Better police arrangements have, no doubt, contributed something, of late years, to the improvement that has taken place: but the mere restoration of the spirit trade to the protection of the law, and thereby

* Lord BATHURST's speech in the House of Lords.

The brewers and distillers are the causes of great destitution.

into the hands of persons of respectable character, appears to have had an immediate beneficial effect of itself; indeed, it was not until after this had been done, that even the best adapted regulations could have been of any avail, in preserving public decency, or repressing disorder. No stringent act could have made the law to be obeyed, against so unanimous a determination of the populace to set it at defiance.*

We therefore infer, both from historical facts, and from experience, that one of the greatest, nay, the principal cause of the pauperism of England, and consequently of the *destitution* and *misery* of the families of the necessitous, is the immoderate use of MALT LIQUOR and of ARDENT SPIRITS.

A great *cause of pauperism*, under this head, may be attributed to the undue influence of property;—there appears little of the old Roman patriotism, either in our princes or legislators. The *brewers*, *distillers*, *gin-shop-keepers*, *licensed victuallers*, and *proprietors of low lodging-houses*, and *places of bad fame*,—these are generally powerful and influential men, as well as some of another class, of whom we might have hoped better things. Freedom of thought, and a free expression of opinion, are the birthright of Englishmen; but yet, how few think for themselves, and speak for themselves,—and their fear may be traced

* In corroboration of this statement, we may observe the total relinquishment of the profession of the Christian religion in the French nation, at the revolution, when the uncontrolled passions of men were let to run wild—all the philosophy and pretended reason of men could not restrain them from the most brutal and inhuman actions.

to *party prejudice* and blind zeal. It is said, that PALEY would have been made a bishop, but for the offence which certain passages in his work on *Moral and Political Philosophy*, gave to George III. However, PALEY knew the force of this treacherous spirit, and expressed it in the following words:—

"As the man who attacks a flourishing establishment writes with an halter round his neck, few ever will be found to attempt alterations, except men of more spirit than prudence."

Mercenary speculators have been allowed *to do what they will with their own*,—they grind the faces of the poor—and inflict injuries on the *health of the population* of large mercantile cities and towns. It is true, many temptations are thrown in the way of the labouring classes. The practice of paying wages in public-houses, is highly disreputable to the employer; the allowing of intoxicating liquors in factories and workshops, is likewise reprehensible; public-houses should be compelled to close at an early hour on Saturday night, and during the whole of the Sunday, except only to travellers. It is injurious to society that a publican should be allowed to retail his drink, when the law forbids a shopkeeper to open his shop.* Gin-shops, and houses for the sale of intoxicating drink, are nuisances when abused, and the law should be enforced for the magistrates to fine the

* The national benefit would be greatly accelerated by the adoption of a few such regulations; and we hear that this latter measure is partly introduced into Liverpool, and it has had a most marked effect in diminishing the amount of intoxication, and the number of criminal charges in the police-office, on the Monday morning.

Acts of parliament against tippling.

seller, as well as the *drinker* of intoxicating liquor. When the party is intoxicated, the fine might justly be doubled, in case of any injury done by the intoxicated person, from the *beer* or *gin-seller*, he being the more culpable party. This would soon check those who have not the strength to refuse the noxious draught, but become more degraded than the beasts, by its excess; publicans should not be allowed to continue their license, who had been convicted twice in the year; no publican should sell beer after *ten o'clock* at night, or give credit to pensioners for liquor, on the credit of their pensions; all publicans being convicted of being at any time drunk, should be disqualified from holding a license for five years.*

* By 7, James I., cap. 10, any alehouse-keeper convicted of drunkenness, besides the other penalty of the law, for this offence shall be entirely disabled from holding a license for three years.

By 1, James I., cap. 7, and 1, Charles I., cap. 4, if a publican permits tippling in his house, he forfeits 10*s.* for each offence.

By 21, James I., cap. 7, persons tippling and wasting time in alehouses, forfeit 3*s.* 4*d.* for each offence; persons getting drunk, shall forfeit 5*s.* for each offence, or shall be put in the stocks, and constables neglecting their duty therein, shall be fined 10*s.*

By 10 and 12, William III., cap. 15, retailers of ale and beer, who shall not ell the same in a full ale quart or pint, shall forfeit from 10*s.* to 40*s.* for each offence.

By 10 and 11, William III., cap. 24, persons exercising their ordinary callings on the Lord's day, except selling milk or mackerel, and dressing meat in victuallers' houses and cooks' shops, and excepting works of charity and necessity, shall be fined from 5*s.* to 20*s.* for each offence.

Why was not this act extended to *drinking*, as well as *eating*?

By 17, George II., cap. 5, persons giving shelter to rogues and vagabonds, forfeit from 10*s.* to 40*s.* for each offence.

Proportion of ale-houses to families.

By 7, George II., cap. 31, publicans' suffering unlawful games in their houses, or disorders therein, shall forfeit their recognizances, and be disqualified keeping an alehouse for three years.

No publican shall harbour in his or her house any smuggler, duffer, dealer in, or utterers of, base money, nor any noted, known, or reputed thieves, loose and idle characters,—for a second offence, to lose their license. No ublican shall permit journeymen, or working people of any description, to assemble for the purpose of unlawful combinations, confederacies, debating or political clubs; no new house to sell liquor as a licensed spirit-shop, unless it can be shown, in towns, that there is an accession of at least 100 houses, requiring this accommodation in the neighbourhood; or that such new house, if in the country, has become absolutely necessary, in consequence of increased population, canals, alteration of roads, or other improvements. Licenses should be withdrawn from such houses, alehouses, gin and beer shops, as appear regularly to have changed tenants twice every twelve months in a course of a year. Licenses should be uniformly withheld (as contrary to law) from all liquor shops; and also from such as have no proper accommodation for the sale of beer and victuals, and where a small quantity only is retailed, merely as a cover, to obtain an ale license, for the sole and only purpose of exhibiting it at the Excise-office, without which, a license to sell spirits, which is the only object in view, cannot be obtained. Also, it should be in the power of the central commissioners to restrain the number of publicans to one * in fifty, or one hundred houses, in a town or village.

The legislature at an early period, when society and manners might be supposed to have made little progress, appears to have been impressed with a sense of injury to be dreaded. Since the act of the 5th of Edward VI. cap. 26: 253 years ago alehouses were placed under the particular direction of magistrates who were required—

"*To take bond and surety for good behaviour against using unlawful games* and the maintenance of good order. The sum forfeited on conviction by this act, was

* In some of the large cities, the number is too many—1 in 25, is the average of London; in the Tower Hamlets, the average is 24; in the Tower Liberty, only 17 houses to 1 public-house. Some years back, it was accurately ascertained, that 127 alehouses, in the Tower Hamlets, had been occupied by 480 more tenants in the course of four years!—And in the whole of the metropolis and its environs, it is calculated that there is about 1 public-house to every 37 families.

£10, which has continued without alteration to this day, although from the difference in the value of money, £60 bail at this period would be hardly equal in amount to £10 in the reign of Edward VI."*

* In the year 1794, it appears that 1,132,147 barrels of malt liquor were brewed, which COLQUHOON believes were drank in the metropolis, and paid for at 3d. per pot, amounting to £2,311,466; in the year 1806, 1,454,194 barrels, which at that time cost 5d. per pot, £3,500,000; in 1839, according to T. BEAUMONT, Esq., there was spent in malt liquor £48,857,243; for wines, cider, perry, &c., £8,250,000; 20,588,889 gallons of spirit realizing £17,250,000; and the total number of brewers was 48,211.

The parliamentary returns for 1839, furnish the following table of manufacturers, dealers, and retailers of spirits:—

Distillers and Rectifiers		112
Dealers in Spirit, not Retailers		2,966
Retailers	under £10 ℔ annum	15,761
Do.	20	19,518
Do.	25	3,166
Do.	30	1,996
Do.	40	3,644
Do.	50	2,352
Do.	above 50	4,826
	Making the total number of Sellers	54,341

In 1839, the number of bushels of malt brewed was as follows:—

By public brewers	32,823,034
By private families	6,223,592
Making the total number of bushels	39,046,626

In fermented liquors the number of Gallons was	63,780,095
In distilled spirits	29,528,889
Total number of gallons	93,308,984

The property lost both by sea and land in consequence of the abounding of drunkenness is truly astounding. Several witnesses before the House of Commons, referring to the amount of property lost every year at sea, through the influence of intoxicating drinks, have stated that in the short period of six years not less than 2,687 ships and vessels were lost, stranded or wrecked, and 218 were missing; and the number of persons drowned was 3,414! wholly attributed to want of care through this baneful vice.

Temptation of the public-house.

If it became so interesting an object to the legislature, at so remote a period, when the morals of the people were probably less contaminated, and when the number of public-houses must have been comparatively few in number,—how important has it now become, to attend minutely to this particular branch of legislation, when it is well known, that 100,000 licensed alehouses in England, are constantly holding out *seductive lures* to the *labouring classes* in various parts of the country. In ancient times, they were merely considered as victualling-houses for strangers and travellers; and hence it is, that in technical language, all licensed publicans are denominated *victuallers*. In modern times, they are become the *general receptacle* of the *vicious*, the *idle*, and the *profligate;* and constitute one of the *principal sources* of those mischiefs which have given an unfavourable turn to the manners of the working classes, *and to the pauperism of England.**

In vulgar life, it is the first ambition of the youth, when approaching towards an adult state, to learn to smoke tobacco; when this accomplishment is acquired, he finds himself qualified to lounge and waste his time in the tap-room; it is here that his mind receives the

* Justice ERSKINE, at the Salisbury assizes, when sentencing a gentleman to six months hard labour, for a crime committed through strong drink, declared, that 99 out of every 100 criminal cases were from the same causes. Judge COLERIDGE, at the Oxford assizes, said he never knew a case brought before him which was not, directly or indirectly, connected with intoxicating liquors. Judge PATTERSON, at the Norwich assizes, said to the grand jury,—"If it were not for this drinking, you and I should have nothing to do."

first impression of vice,—the force of evil examples is powerful. But the evil does not rest here : numerous families of labourers lodge, with their wives and children, in common ale-houses, in the metropolis, and probably in most of the large towns and cities, while of late years, the females, whose mothers and grandmothers would have been ashamed to enter a tap-room, now indiscriminately mix with the company, and unblushingly listen to all the rude and often obscene discourse, which circulates freely in these haunts of vice and idleness. This baneful vice, which lies at the root of all the good that can be expected, saps the foundation of every social virtue. Through this medium are seen, some of the very leading features in the habits and character of the labouring classes of the people ; and, perhaps, nothing can so strongly evince the effect of evil examples on the minds and manners of young persons, as the facts just alluded to.

Public-houses admit of a division into the following classes :—

1. Large inns and posting-houses in town and country.
2. Large inns, in towns, for the reception of travellers, coaches, wagons, &c.
3. Houses of entertainment and taverns.
4. Hotels for lodging strangers.
5. Coffee houses.
6. Tea-gardens—licensed to sell ale and other liquors.
7. Liquor-shops, or spirit-shops.
8. Common alehouses.
9. Beer-shops.

The most prominent abuses are to be found in the three latter, particularly liquor shops where no beer

is sold, and where a beer licence is procured for the purpose of obtaining a spirit-license, without which it cannot be granted by the Commissioners of Excise. These promote dram-drinking to an incredible extent, and all the train of misery incident to habits ruinous to the morals of the inferior order of society. As these shops are carried on at a comparative small expense,—no credit being given, and consequently no risk of bad debts,—they are eagerly sought for: the customers are numerous, and the sale extensive: and so fascinating are the charms they possess, that the last rag is often carried to the pawnbroker, to enable the drunkard to enjoy the momentary gratification of a glass or two of gin,—which is dealt out in a moment to one customer after another, whilst the means of payment remain. These houses are decidedly contrary to both the spirit and letter of the act of 17, George II. cap. 17, which state—

"That no shopkeeper be allowed to retail any spirituous liquors, but only them who keep taverns, victualling houses, inns, coffee houses or alehouses."

This act originated in a complaint made by the medical gentlemen, in the year 1744, stating that great numbers of his majesty's subjects died in consequence of the ready access to gin, at the numerous liquor shops then existing in every part of the metropolis.*

* It is really surprising to see the diminutive size of the men generally who are born and brought up to manhood in the metropolis. Colquhoon states, that in 1803 when acting as deputy lieutenant in an eastern division of the city, out of nearly 1,000 persons ballotted for the militia who were brought before him about 25 in 30 upon an average, were found to be under size: their growth being clipped by their early intemperate habits—particularly gin-drinking.

The manner in which publicans inveigle tipplers.

It is calculated, that there are about 1000 houses of the second class which change their tenants two, three, and not unfrequently four times in the course of the year; and this is generally the case in almost every town and village in the country,—a clear proof that more houses are licensed than can procure customers, numerous as they are. The injury arising to society is excessive; as many persons are ruined by not having sufficient profits to pay their expenses, and maintain themselves, and support their families.* Publicans get themselves entangled in a concern, which requires extensive sales of liquor to enable them to pay rent and taxes; and to cover the heavy losses they sustain, frequently sacrifice the character of their houses to prop their tottering fortunes.†

It is of the greatest importance, that even the laws now in force should be carried rigidly into execution.

* The competition among brewers and distillers, to monopolize every house which has been heretofore licensed, operates very injuriously to their own interests, since, by their floating houses of insufficient trade, great losses are frequently sustained by the insolvency of the tenants, who are often induced to suffer disorder, and to encourage every irregularity tending to the corruption of morals, with a view to force a trade.

† "The public in general were astonished," says COLQUHOON, "when he stated, in his *Treatise on the Police of the Metropolis*, in 1806, that there was stolen from the alehouses and inns in the city and villages adjoining, pewter pots to the value of £56,000 a year." But he states, "that three years after, the publicans themselves, in an application to parliament for relief, before a committee of the House of Commons, say that their loss in pewter pots amounted to £100,000 annually:—a shocking proof of the extent of petty offences, and the depraved state of morals in vulgar life—a state of turpitude which will increase as long as above *three thousand old iron shops* are suffered to exist in the metropolis, without regulation or controul, purchasing every thing that is offered, without asking questions."

The present regulations inefficient.

Though the power of the justices to withhold licenses, has at all times, in a small degree, operated as a restraint, the want of uniformity in establishing rules in the various counties, cities, and towns, applicable to the changes which are constantly taking place in the manners and habits of the people, to meet the new and mischievous devices which are resorted to, it would certainly be desirable that stringent rules should be universally extended to every division or hundred in the country; since it often happens, that while good order is enforced in one district, a relaxed discipline prevails in another, to which common thieves, receivers of stolen goods, and other bad characters, are induced to resort.*

But that the *destitution* of the *labouring classes* is principally caused by their unconquerable love of ardent liquors, every day's experience testifies,—nay, they are, when under the influence of this maddening draught, guilty of excesses which human nature shudders to relate. Every newspaper furnishes ac-

* The law has, indeed, prescribed certain regulations, requiring *certificates of sober life and conversation;* but such testimonials are obtained in each parish, at the expence of 2*s*. 6*d*. to the beadle, who procures the signature of the minister, churchwardens, and overseers, as a mere matter of course. "No consideration of emolument, can be put in competition with the morals of a nation, and no minister can be justified, either on civil or religious grounds, in rendering the latter subservient to the former." But they increase the revenue—"emolument is put in competition with morals," and it prevails. Even on grounds of political economy, however, the evil is great, for they materially diminish the effective labour of the population. If to this we add the multitudes whom the idleness of drunkards throw upon the parishes, perhaps, as much is really lost in wealth by this penny-wise policy, as is lost in virtue. Besides, all needless alehouse-keepers are dead weights upon the national industry: they contribute as little to the wealth of the state, as he who lives upon the funds.

counts of the poverty, misery, and crime produced by its baneful effects.*

A propensity for ardent spirits, is a general failing; and its influence on the labouring population naturally produces poverty,—while men with famished families, produced by their reckless intemperance, when stimulated by the noxious draught, are often the projectors and perpetrators of every species of crimes,—and

* For the truth of the following narrative, I have the most satisfactory evidence:—A most industrious and pious woman had the misfortune to be the wife of a notorious drunkard. He had constant work, and good wages; but, notwithstanding, would get so much in arrear at the beer shop, that his poor wife was sometimes obliged to pay, out of her own small earnings, the debt that he had contracted for drink, in order that she might thus prevent their goods from being seized. A little before her death she had been confined, and, before having properly recovered, went one evening to bring him home from the public-house. Not being ready to accompany her, she waited some time for him in the cold and rain. The consequence was, she took a chill which confined her again to her bed; inflammation rapidly followed; medical advice was needed, but the wretch that should have hurried to obtain it, was drinking himself drunk at the public house, and late in the evening came home in a state of beastly intoxication: and, heedless of the pangs and groans of his wife, crawled into her bed. During the night the paroxysms of pain were such, that, in turning to obtain relief, she rolled out on the floor; and, being unable to help herself, there she lay on the cold boards until the morning. He all this time was in bed; but, from the stupefaction occasioned by what he had been drinking, remained deaf to her cries. When the monster did awake, and discovered the scene, he procured medical aid, but it was too late. In a short period, the spirit of the unhappy sufferer was summoned to the bar of Heaven, to bear witness against the villain who, at the altar of God, had sworn to nourish and cherish her until death. A family of six or seven children was thus bereft of their only guide; and but a little time rolled away before the pregnancy of her eldest unmarried daughter told the sad tale, that *suffering* and *death* are not the only evils attendant on drunkenness. In looking at this case, let us suppose that any husband, instead of shooting, or cutting the throat of a wife whom he was about to destroy, should have adopted the plan of depriving her of life by a slow and highly-torturing process, so that, instead of slaying her at once, he had, by that refined cruelty which the savage Indians of America are said formerly to have exercised,

amongst them, *dishonesty* stands particularly prominent.*

The *operatives* and *labourers* of all classes are more addicted to this besetting vice, in England, than in any other country in the world; and its effects on them, by demoralizing their national character, are developed, not only by producing an amount of *poverty*

deprived her of one limb after another, until at last, after days of torture, his victim, unable to suffer any longer, died under his hand. What, we ask, would have been the horror and the indignation of the country at hearing that such a crime had been committed in a Christian land? And if it had been discovered that the demon that impelled the guilty man to this deed could be expelled from among us, is there an energy which young or old could command, but would have been employed for the purpose? Now, the fiend that effected all this misery and crime—that first robbed the husband and father of a human heart—that deprived him, or rather impelled him to deprive himself, of a fond and pious wife, and his children of a kind and godly mother—the fiend that did all this was alcohol, concealed in the insidious draught of *beer*, or what is called, but falsely called, "a wholesome and nutritious beverage."

* *Dishonesty* in all its complicated forms has awfully increased within the last ten or twenty years. From parliamentary documents we learn, that the number of criminals committed in England and Wales, including London and Middlesex, during seven years, commencing with the year 1812, was 79,137 while in a subsequent period of seven years, ending with the year 1831, the number amounted to 152,574, showing an increase in the latter period of no less than 73,437, and that the total increase in 1831, was almost equal to the whole amount of crime in 1812, proving that in the short distance of twenty years the offences and committals of a single year had nearly doubled. By another calculation for ten years ending 1834, we find from parliamentary returns, that the number of committals for 1825, was 14,437, and in 1834 the sum had swelled to 22,451, so that the increase of the single year, 1834, above that of 1825, was 8014. In Ireland things were still worse; in that country in 1823, the number committed was 14683, but *seven* years after, in 1834, the committals were 22,381, showing a total increase of the year 1834, above the year 1828, of 7698. In Scotland, considering the comparative smallness of the population, crime has increased to almost an equal degree. In 1824, the total number of persons charged with offences was 2057, while in 1833, ten years after, 3289 individuals were apprehended, showing an increase of 1833 over 1824, of 1032. Thus, then,

and *wretchedness* scarcely capable of belief, were they not attested by witnesses of the greatest veracity, but, as a natural consequence, the most *heinous crimes* are committed when the aggressor is under the influence of the intoxicating liquor.*

The practice of intemperance is national, and causes not only the evils which have been alluded to, but it is really a *national loss* in the supply of food: 40,000,000 of bushels of malt, which paid £5,262,362 duty, in the year 1843, are worth at last £16,000,000:

we have placed before us the alarming fact that, within a very few years, crime has increased to an awful degree. We know it will be objected that the population has also increased. We grant that it has, but still it will be seen that crime has progressed much faster. In 1821, the population of England, Scotland, and Wales, was 14,072,331, and in 1831, it was 16,260,381, yielding an increase of 2,188,050. The augmentation of the population is therefore as two to sixteen, or about one-eighth, but the increase of crime is as nine to twenty-five, or about three-eighths, and consequently full *one fourth*, or one quarter, greater than that of the population.

* Of the 22,451 criminals committed in 1834, by far the greater number consisted of thieves. In giving this enumeration, it must be remembered that we include only those who were actually committed; and when it is considered that perhaps one half of those who are guilty of theft or dishonesty escape apprehension, it will be seen that the number just stated will give us but a very imperfect idea of the actual amount of offenders. And yet these, whether detected or not, have been chiefly induced, through the use of strong drinks, to disgrace themselves and injure their neighbours. In some instances the youthful purloiner has been educated in dishonesty by his *drunken father*, *mother*, or other *associate*. In others, want and starvation, induced by drinking, have prompted them to steal. Habits of *extravagance*, in which beer, wine, and spirit drinking form a principal ingredient, have brought *many a man to ruin*, and led him to commit those crimes which have doomed him to a prison. How often too, in the beer shop, have plans of theft and dishonesty been concocted and matured, and how many a stripling, while under the influence of liquor, has been beguiled to cast in his lot with desperadoes. Many also find it absolutely necessary to drink largely before they can muster courage to take their neighbour's property.

and supposing bread to be eighteen pence per quartern, that sum would purchase 3,840,000,000 quartern loaves, which would supply upwards of 2,000,000 of the people with two pounds of bread per day for a whole year; so that this intemperate drinking is not only to individuals the cause of *disease*, *misery*, *poverty*, *extreme wretchedness*, *dishonesty*, and *crimes* of the *blackest dye*, but the same grain which produces this liquid, would comfortably feed *four hundred thousand* families for a year, allowing each family to consist of *five persons*. And, if to this we add the worth of the gin which is distilled, we may fairly reckon twenty millions of pounds sterling, wasted,—nay, worse than wasted on these liquors; without even mentioning the other spirits and wines: a sum which would nearly pay the interest of the national debt, or the amount of the poors' rate four times!!! And yet this immense quantity of malt, 40,000,000 of bushels, or 5,000,000 quarters, which paid duty in 1843, is not so great in proportion to the population as the quantity which paid duty in the year 1703.—(*vide page* 89.) We, therefore, clearly perceive by a glance at the statistics below,* that the causes of *pauperism* amongst our population must arise from other sources, *as well as* their attachment and inordinate use of ardent spirits and of malt liquors.

Years.	Population.	Qrs. of malt.	Poors' rate.
1710.	5,600,000.	2,959,063.	£1,000,000.
1843.	14,995,508.	5,000,000.	£6,351,828.

CHAP. IX.

THE PAWNING SYSTEM.

The evil effects of pledging—Number of pawnbrokers in England—They promote dishonesty—They are the warehouses for stolen goods—They foster crime, and engender laziness.

In the metropolis, and in all large towns, the poor are subject to another excessive burthen upon their little incomes, originating chiefly by their improvidence, and the total want of frugal habits or forethought, which compel great numbers to resort, on every occasion, to the pawnbroker's shop, when want, or even the gratification of any propensity, renders the accession of a small sum of money necessary; which is not unfrequently laid out, at the same moment, in gin, or some expensive food, or other gratification which might have been dispensed with. In many instances, useful articles are pledged to procure the absolute necessaries of life. So rooted is this habit of trusting to the pawnbroker's shop for assistance, while an article of furniture or a rag remains, upon which money can be raised, that a dependance on this resource often deadens the stimulus to forethought producing previous exertion; yet, in so great a degree has it become a habit, that if these modes of raising money were not accessible, or were suddenly taken away, thousands would unavoidably perish in the streets. The distress, on some occasions, is so great,

as to compel the miserable objects to pawn the blanket in the morning, to take out the coat, gown, or petticoat, and again in the evening to pawn the day garment, to relieve the blanket, to cover them in the night. Where the money lent does not exceed a shilling, and supposing this operation to continue a whole year, the interest paid for the loan would amount to £3000 per cent. It is by frequent fluctuations within the month, and by pawning one article to relieve another, where a small sum is obtained, that the premium for money becomes so excessive. There are about 240 licensed pawnbrokers in the metropolis, and nearly 1450 in the country towns and villages.* Their progressive increase, particularly in the country, strongly indicate an unfavourable change in the manners and habits of the working classes, since almost every year adds to the number of these shops. The capital employed is supposed, upon good grounds, somewhat to exceed a million sterling: and this capital is presumed to be turned round thrice in the course of a year, and to yield each time about $33\frac{1}{2}$ per cent. on an average; according to which calculation, the inferior orders of society in England are supposed to pay about one million a year, for the use of a temporary loan, exclusive of what they lose by goods being forfeited. Such a state of things require legislative inquiry, with a view to discover whether the necessary accommodation could not be afforded in a

* Colquhoon's *Treatise on Poverty, and a Scheme for the Amelioration of the Poor.*

cheaper and better way, through the medium of public institutions; and whether, through such a medium, unnecessary and injurious accommodations might not be withheld.

The evidence of Mr. Mott, a contractor for Lambeth workhouse, London, on the subject of pawnbroking, states as follows:—

"In the course of my experience and investigation, I have had many thousands of duplicates of articles pledged by the poor, and I have found, that nearly all the articles pledged by these classes are at sums from 3*d.* to 1*s.*, and not exceeding 1*s.* 6*d.* each pledge. It is notorious to those acquainted with the habits of the people, and it is, indeed, admitted by the paupers themselves, that nine out of ten of them pledge for liquor. The immense proportion of these pawnings were by women, and chiefly of articles usually deemed essential to their use and comfort—such as handkerchiefs, flannel petticoats, shifts, or household articles,—as tea kettles, flat irons, &c. &c. These articles, being always in requisition, are usually redeemed in a few days, and, very frequently, the same day. I made a calculation of the interest paid by them for their trifling loans, and found it as follows:—

		℔ cent.		℔ cent.
A loan of 3*d.*	if redeemed same day, pays interest at the rate of	£5200,	weekly	£866
4*d.*		£3900,		£650
6*d.*		£2600,		£433
9*d.*		£1733,		£288
12*d.*		£1300,		£216

This, though the cause of poverty, is sometimes the means of support to the inhabitants of towns; particularly in times of manufacturing distress, during sickness, or until labour can be procured, or health renovated; but although many have *relief* from the pawnbroker, which ought to be afforded from another and a more laudable quarter, (a benefit society), yet the evil of the system lies in the facility with which the intemperate have to gratify their inordinate desire for drink.

No. 4.

Evils of pawning.

There is another and a very prominent evil produced on the population, by their ready access to the pawn-shops; they are, in many instances, the warehouses for stolen property:—habits of dissipation produce intemperance—this produces poverty—crime follows as a natural consequence; the young *blade* probably robs his employer—the prostitute steals from the libertine—the workman the materials of his master, or, probably, the prodigal son purloins from his father; and the articles thus abstracted, are soon located in the pawn-shop, buried from public view for a year, and then privately sold by the receiver of stolen goods, to add to his wealth; and the secrecy of such transactions, only tends to induce other victims to follow the same dishonest course, or to allure the practiced villain to commit greater crimes, until he is caught in the trap of justice, and doomed to ignominy and shame: and this he may frequently trace to the pawn-shop, inasmuch, were there no persons to receive stolen property, thieves would soon lessen in number. We might here mention another prominent evil in these pawn-shops: we have seen that they increase *drunkenness*, and further *dishonesty*, they likewise promote *laziness*, which is the forerunner of poverty, destitution, and misery: and they are consequently one of the *causes of distress* to the *labouring population.*

CHAP. X.

STATE OF THE LABOURING POPULATION DURING THE MIDDLE AGES.

State of society in Elizabeth's reign—Consequences of founding colonies—Effects of their prosperity on the mother country—State of the cities and towns—A description of the inhabitants, comprising the merchants, shopkeepers, and apprentices of London.

The state of the labouring population during the middle ages, may well form a subject of consideration, particularly as the reign of Elizabeth has been characterized as the halcyon days of Old England. The internal prosperity of the country had commenced nearly a century before she began her reign,—agriculture, commerce, manufactures, fisheries, distant voyages had been begun, and had prospered. Even the monks, who had been dispossessed of their livings by her father, and whose pensions out of their proceeds had, during her sister's reign, been withheld by the parties who had become possessed of their revenues, were ordered by her to be punctually paid; and the arrears due to these unfortunate men, who had been educated in solitude and ignorance, were, by her authority, to be discharged. The nation at large became benefitted by her liberal government, and shoals of Flemish manufacturers, who were expelled by the Duke of Alva, found an asylum on her shores. A thirst for maritime adventure was diffused among her citizens, and Drake, Raleigh, Middleton, Hudson, Baffin, Davis, and Frobisher,

were famous as navigators. As a consequence, followed the establishment of factories and colonies, and the opening up of new channels of commerce in distant and hitherto unknown climes. The cod fisheries of Newfoundland, and the whale and seal fisheries of Greenland and Spitzbergen, were successfully cultivated; and the commencement of the traffic in human flesh had also its beginning in her reign.*

* It was in this reign that the foundation was laid for that enterprize which succeeding years fostered and matured. National cupidity had been roused by the accounts which those who had visited hitherto unexplored regions had promulgated. The spices of the east had been tasted—the rich silks, velvets, brocades, and cloth of gold, of Italy, had been imported and admired,—the imagination dazzled with the extravagant descriptions of the gold and diamond mines of India, Peru, Mexico, Guiano, and Chili. Throughout the nation, a spirit of emulation and rivalry had been awakened, and a disposition manifested not to be satisfied with baronial barbarism, monotonous fare, and such miserable accommodations as past ages had been accustomed to be contented with. Under the Tudors, the chief fruits and esculent herbs were introduced—as apricots, melons, currants, salads, cabbages, turnips, and hops, which last were cultivated as a garden, and not a field plant; and in this reign were introduced, amongst other plants and flowers, the gillyflower, the carnation, the rose of providence, the musk rose, and the damask rose. The improvements in agriculture were also very apparent; an acre of land would produce as much corn as two acres formerly did, through the thrift and skill of the cultivator. The average yield of corn on each acre well tilled, was twenty bushels of wheat, thirty-two of barley, and forty of oats and pulse. More attention was paid to manures, and those agriculturists in the vicinity of large towns, began to use the sweepings of the streets with coal dust, over various soils. But yet, the means for the sustenance of cattle during the winter months were very limited. Serious privations were still felt and experienced by all classes of society, and all but the very opulent were compelled to eat salted meat the greater part of the year. In autumn, as much meat was cured as would last the winter; and until the spring pastures had become luxuriant, there were no means of fattening cattle for the table. A great progress had, however, been made in the luxuries of living. Lamb, and a great many delicate meats, mark the luxury of this reign. Several courses were generally produced at the tables of the wealthy, which were most commonly succeeded by a dessert of fruit, spices, and jellies. Breakfast was not common

The hours of meals and the food made use of, have not undergone greater changes than have the prosperity of many towns of the kingdom since that period.*

as a meal; if any thing were taken before dinner, it was usually a bit of bread, with a horn of ale. Rural life may be learned from TUSSER's *Pointes of Husbandrie:*—"The farmer and his family had their diet of red herrings and salt fish, in Lent: at other times, fresh beef, pork, &c." At Christmas, "good drinke, a good fire in the hall, brawne, pudding, and souse, and mustard withal, capon or turkey, cheese, apples, and nuts, with jolie carrols." The prudent housewife is advised to make her own candles. Servants are directed to go to bed by ten in summer, and nine in winter; and to rise at five in the winter, and four in the summer. Holidays are appointed for the working men. The hour of eleven was the hour for dinner with persons of quality, and of supper, at five and six in the afternoon; while the merchants took their meals an hour later."

* Plymouth is described as having grown up in the last age from a small fishing village—it had only one church until 1640. Lyme, is said to have been a very little town, scarcely to be called a seaport, although frequented by fishermen; and Poole, which had been in the preceding age merely a sedge plot, with a few fishing huts, was yet only a small town, having some fair buildings, and a well-frequented market. Portsmouth is described as being very populous in time of war, but not so in time of peace. Brighton, was only a station on the coast; Lynn, though only of recent origin, was, for its number of merchants, beauty of its buildings, and wealth of the citizens, beyond all dispute the best town in Norfolk, except only Norwich, which still was a large and populous place, but it had considerably declined from its ancient greatness – its fifty churches having been reduced to thirty. Lincoln was still more decayed: "It is incredible," says CAMDEN, "of this town, how it has sunk by degrees under the weight of time, for of fifty churches that were remembered in it by our grandfathers, there are now scarce eighteen." Birmingham, called Bremicham, is described as "swarming with inhabitants, and echoing the noise of anvils;" though our author states that there was not long since a twentieth part of the inhabitants it now enjoys; Halifax, with a single parish church, already contained twelve thousand inhabitants, so that "the parishioners used to say, that they could reckon more men in their parish than any kind of animal whatever; whereas in the most fruitful places of England elsewhere, one shall find thousands of sheep, but so few men in proportion, that one would think they had given place to sheep and oxen, or were devoured by them. The industry of the inhabitants of this town is remarkable,—standing on a barren soil, not fit to live in; but it has so flourished by the cloth trade within the last seventy years, that the inha-

Improvements of the Elizabethian age.

Mankind, about this period, began as it were to emerge from lethargy: inventions and improvements seem to rise in quick succession—literature and science received great acquisitions from the writings of Shakspere, Spencer, Jonson, Ford, and Massenger, and a new era splendidly burst upon the kingdom. Silk and worsted hose first began to be manufactured. Noblemen and persons of wealth now sought to repose on down, covered with blankets of woollen, and sheets of fine linen. Smoking tobacco became general—it was first introduced into Europe by the Spaniards, and Sir Walter Raleigh brought the practice into England in 1586, from the American colonies.*

bitants are very rich; which confirms the truth of that old observation—that a barren country is a great stimulus to the industry of the natives,—examples of which we find in Germany, Venice, and Genoa, in Italy, and France, having towns situated in barren soils. As a proof of the vast growth and increase of this town, in 1443, there were only thirteen houses in it. Sheffield is described as remarkable, among other little towns thereabout, for blacksmiths, great plenty of iron being dug in those parts. Bradford, now a town, was merely named; Huddersfield is not mentioned at all. Hull, though a place of great antiquity, "by degrees," says CAMDEN, "has grown to such a figure, that for stately buildings, strong forts, rich fleets, resort of merchants, and plenty of all things, it is the most celebrated town in these parts; all which was owing to Michael de la Pole, who was advanced to the earldom of Suffolk, by Richard II; he procured them the privilege of a monopoly in trade to Iceland, for fish; dried, and by them called *stock fish*, which has strangely benefitted the town." The reason why fisheries were so profitable and desirable, was in a great degree caused by the catholic persuasion being the only predominant religion, whose injunctions compelled their followers to eat fish a great portion of the year.

* Sir Walter Raleigh was a most intolerable smoker, but indulged in the habit so secretly, that it was some time before it was discovered; but by a ridiculous accident it became known, and was adopted by people generally. The writers of the age say, it was practiced by critics at the theatres, by judges on the bench, and by criminals on the scaffold. The pretext then, as frequently at present

Luxuries of the age.

This was also the age for luxuries—a proof that a large portion of the population was being enriched by commercial transactions. The novelty and variety of the viands that were imported, created a taste for good living, which was tampered by the choice variety of the wines brought from abroad. Thirty-two different kinds of foreign wines were imported in copious abundance, the strongest being in most request; and the lusciousness of the draught was often heightened by sugar, lemon, eggs, or spices.*

As the mercantile community began now to acquire an increased importance, the peculiar manners and customs of those who bought and sold, may be exhibited, to show the state of society at this period. The aristocracy of the land still looked down with disdain on the trafficers, and endeavoured to keep them from elevating themselves. But, in spite of the opposition

was, its alledged sedative effects under the trials of life; and CAMDEN relates a curious instance of martyrdom to this seductive intoxication; according to him, Fletcher, bishop of London, died from the immoderate use of tobacco, which he took to smother his *matrimonial cares*.

* Besides these, there were various kinds of home made wines. In ale and beer, there were likewise great varieties,—*double*, and *double-double beer*, *dagger-ale*, *bracket*, *huffcap*, *mad dog*, *angel's food*, and *dragon's milk*, are some of the sorts mentioned; and from their names, we may suppose them to equal, in flavour and potency, the *stout*, *xx*, *xxx*, *old October*, the *underground*, the *cream of the valley*, &c. &c. of the present age. And the ales in those days were qualified, as they are at present, if not with the exciseman's stick, yet with spices, sugar, sometimes with a toast, an apple, and stirred with a sprig of rosemary, to add to their flavour. And yet, what a deplorable state some of the *labouring population* must have been in, when historians relate, that during her reign, not fewer than *four hundred criminals* expiated their lives on the gallows *every year*.

The London shops in the 17th century.

of the court and the nobility, the merchants and the shopkeepers continued their traffic, and prospered. The London shops of the 17th century were still little booths or cellars, generally without doors or windows; and instead of a gilded sign, or tempting show-glass, which in the next period we shall have to describe, the masters took turns before the door, crying "What d'ye lack, sir?" "What d'ye lack, madam?" "What d'ye please to lack?" and then he rehearsed a list of the commodities in which he dealt. This, when he was weary, was repeated by his apprentice, and thus a London street was a babel of strange sounds, by which the wayfarer was dinned at every turn. The articles of the dealer were of a very heterogeneous description; these were huddled in bales and heaps within the little shop, and in the midst of them might be seen, the wife or daughter of the master, plying the needle, knitting wires, and eyeing the passing crowd.*

* A description of a merchant informing his idle apprentice the way to grow rich,† says, "Did I gain my wealth by ordinances?—No. By exchange of gold?—No. By keeping gallant company?—No. I hired a little shop, bought low, took small gains, kept no book debts, garnished my shop, for want of plate, with good, wholesome, thrifty sentences, as 'keep thy shop, and thy shop will keep thee,' 'light gains make heavy purses,' 'tis good to be merry and wise.'" But although the shops and warehouses of the London merchants were of such humble description, the houses were very different, so that as early as James, the dwelling of a chief merchant rivalled the palace of a nobleman, in the splendour of its furniture.‡ At the hour of twelve, the merchant usually repaired to the Exchange, and again at six in the evening; at nine o'clock, the Bow bell rang, which was a signal for the servants to repair to supper and bed: "a bell," says Fuller, "which the masters thought rang too soon, and the apprentices

† Pepy's *Diary*. ‡ Stow.

too late." From the merchants and shopkeepers, we may descend to the apprentices of this period, and, strange to tell, they seem to have been among the chief civic nuisances of the 16th and 17th century. These youths, although scattered over the metropolis, were formidable, not only from numbers, but their union, and they seem to have acquired such a reckless ferocity, from the consciousness of their strength, that they always were ready to head the minor insurrections. In vain was it for the city guard to oppose them,—clubs, bills, and partizans, were swept before the whirlwind of a "'prentice onset," and it was often necessary to call out the military against them. One aggrieved member of the fraternity was enough to throw, with a single war-whoop, the whole ward into an uproar. Whether attacking or attacked, he had only to shout out the cry of "'prentices clubs," when every shop, warehouse, and street, repeated the warning, and every apprentice snatched up his hat and rushed to the rescue. These took upon themselves to be the arbiters of public justice. These turbulent lads had also their feuds against certain other bodies, among which, the Templers were distinguished; or any one who opposed or spoke sleightingly of their misdeeds. But when the heyday of apprenticeship had exhaled, many of these youths grew sober, rich, and obese, and were thus qualified for civic offices and dignities; but the greatest part acquired such unsettled and profligate habits, that their dismissal from shop and warehouse was indispensable. Being thus thrown upon society, they were ready for every desperate deed; and from the host of discarded apprentices, a bravo could be easily hired by any gentleman who was base enough to use the services of a mercenary cudgel." Such was the audacity of town thieves and robbers, in the latter part of the 16th century, that on one occasion, Elizabeth herself, whilst taking an airing in her coach, near Islington, was environed by a whole regiment of "rogues and masterless men," and was obliged to dispatch a footman to the mayor and recorder for help. Fleetwood, accordingly, set his myrmidons in motion, and, by the next morning, seventy-four were brought before him. This Fleetwood, who was recorder of London, appears to have used every exertion to weed out the pernicious characters of those days, though for want of an efficient police, both by night and by day, such horrifying and desperate marauders had too often means to escape, while the streets of London, and even the interior of the town, were filled with prowling sharpers of this sort. The highways were equally infested with robbers; they scoured the country in bands, that mustered from ten to forty men, some armed with chasing staves, that is poles twelve or thirteen feet long, others with bows and arrows, or with guns, and almost all with pistols. It was, therefore, unsafe for true men to travel, except in numbers and well armed; and whoever was about to undertake a journey, had to wait until a tolerably strong caravan had mustered for the same rout. The robbers were often disguised as well as armed; they concealed their faces with vizars,—they carried false beards and wigs in their pockets, and even false tails for their horses, and

State of London during the middle ages.

thus, in a twinkling, the appearance of man and stud could be so altered, that they confronted the officers of justice without suspicion; among these, the chief places of danger from highwaymen were Salisbury Plain, and Gadshill, in Kent, and also nearer London, Bagshot Heath. Another description of miscreants are mentioned, who went about the streets of London with figs and raisins in their pockets, with which they allured children to their houses; they then cropped off their hair, and otherwise so altered their appearance that their parents could not recognize them; after which, they shipped them to the plantations, there to be sold for slaves, or what they pretended—indented servants. Another class of persons, who were called in those days coney-catchers, (that is, cheats, in opposition to those who used violence), the number in all parts of the kingdom in the time of Elizabeth, was estimated at not less than ten thousand. In the country, they attended every wake and fair, plundering outhouses and poultry-yards, and "found linen upon every hedge;" and as they moved about in formidable bands, it was seldom safe for the country constables to apprehend them; but London was then the great mart and centre of attraction, and not less than twenty-two kinds of rabbit-catchers are summed up by HOLLINGSHED during the reigns of James and Charles. However, they seemed to have not only increased in numbers, but to have carried the principle of the subdivision of labour still farther out,—they used a cant language for professional communication, resembling that of the gypsies.

In reading the accounts of the various tricks and stratagems, we are reminded of the frauds committed in the *nineteenth century*. Much as we may be astonished at the dexterity of modern thimble-rigging and swindling, scarcely a single act of it is of recent origin,—every trick was practised, with equal adroitness, so early as the good old days of Elizabeth:

"The cut purses (purses in these days were worn on the outside of the clothes,—they were tied round the middle, and hung down by a string, so that they could easily be cut off—hence, the name of *cut purses*) used instruments of the finest steel, made by the choicest workmen of Italy: and they had numerous schools in London, where the rising generation were regularly trained in every species of crime. One way in which children were taught to pick pockets adroitly, is said to be still practised in the metropolis. A pocket, or purse, is suspended from the ceiling, and hung round with small bells, and the young learner is required to finger and empty it without

making or ringing the slightest alarm. All the common knaveries of the town were the same as they are at present: rustic 'squires, or country people coming on a visit to London, were frequently fleeced, or even worse handled, and sent home to horrify their firesides with tales of metropolitan iniquity,—they had gazed at some London marvel, and their purses had vanished the while, as if at the touch of some fairy finger. They had been hailed by city kinsmen, of whom they had never heard, and by whom they were persuaded to entrust their property; but these cousins had cozened them, and disappeared with their goods. Rings, and gems of price, had glittered in their path, and just as they picked them up, some bye stander claimed a share of the spoil, and was bought off by a considerable sum of money; and then the golden toy became brass, and the diamond worthless crystal. Kind *gentlewomen*, pitying their ignorance of the town, had directed them to comfortable lodgings: but at midnight, the window had softly opened—hooks and pincers had entered—and their clothes had risen and departed. With a blanket wrapped round them, they had stolen, at an early hour, to the inn at which their horses had been left, intending to mount and flee; but their cousins of yesterday had been before them, and had taken their cattle by some plausible tale or token."

It must be borne in mind, that in these times there were no police; the watchmen and constables of the day were often leagued with the thieves, and took bribes to allow them to pass unmolested. Amongst the numerous strange characters of this time who had made themselves obnoxious to the law, and were obliged to use false colours, were the Jesuits, or seminary priests: these men were wont to assume as many shapes as Proteus, to escape detection.

"This may account for the strong feeling that was urged against some of the early Quakers, a few years later; being papists in disguise, particularly Penn, Fisher, and some others, who had the address of persons bred at court or college."

The extent and confusion of such a Babel as London had now become, seemed to stun the intellects of King James; and besides the proclamations he was accustomed to issue against the building of additional

houses, as Elizabeth had done before him, and as was also done by his son and by the government of the Commonwealth, he applied himself in various ways to reform what he considered a political evil. He prohibited the Scots coming to London, and threatened the skippers who brought them with fine and confiscation; he tried to persuade the English nobles and landed gentlemen to remain upon their estates, telling them, that in the country they were like ships in the river, that showed like something, while in London, they were like ships at sea, that showed like nothing.

His scheme to thin the city population, was to plant whole colonies of Londoners upon the waste lands of Scotland; a magnificent boon to the English, as he thought, by which the advantages of the union would be additionally augmented. As yet, however, this increase was not accompanied with those general improvements so necessary for the comforts of civic life. The greater part of the houses were still sheds of wood, or of wood and brick; the wretchedness of which was brought into strong relief, by the stately buildings that here and there intervened. The streets were crooked and narrow, and generally overshadowed by a perpetual twilight, from the abutments over head, that rose story above story, until they almost closed upon each other. An example of the same may be yet seen in Bristol, in Newcastle, and in many other old towns. The streets were unpaved—they were damp and dirty even in the dry summer; but in rainy weather, they were almost knee deep in mud; these discomforts were peculiarly striking to foreigners, who seem to have regarded London as the valley of the shadow of death. They complained of the universal coughing that resounded through every assemblage, and they considered consumption to be a national disease, produced by the wet and dirty streets. Kites and ravens were kept, as scavengers, to devour the filth and garbage of the streets; and bonfires were frequently kindled, by order of the magistrates, to purify the air and avert a visit of the plague. The city being for the most part unaccommodated with sewers, after heavy showers, or a day's rain, the streets ran rivers of mud; the elbowing of the crowds in getting a clear passage, was not the only obstacle the pedestrian had to encounter,—he ran the risk of being tossed by a half-baited bull, or hugged by a runaway bear, and a sudden rush and encountering between the Templers and apprentices, or of butchers and weavers, who might sweep him

A predominant belief in witchcraft.

unawares into the throng of battle, where, although he espoused neither party, he might get well cudgelled by both. If he sought to avoid all these mischances by the expensive protection of a coach, as just beginning to be brought into use, he might suddenly find himself and his vehicle sprawling in the kennel, through the rude wantonness of the mob. This last pastime had become a favourite with the London rabble, who called coaches *hell-carts*, and delighted in upsetting them, in hatred of every thing aristocratic. Such was a day in the metropolis, but the night was confusion. After the twilight had dispersed, darkness succeeded, and the peaceful citizen safely housed, it was then really dangerous to walk the streets after nine o'clock,—a set of midnight ruffians bid defiance to the watchmen's staves and lanthorns. These sons of Belial, "flown with insolence and wine," took possession of the corners of the streets,—passengers were insulted, wounded, and often killed, and the roofs of rich citizens' houses were untiled for the purpose of plunder; these were designated *roaring boys*, *bonaventers*, and *privadors*, being somewhat similar to the swash-buckers of the seventeenth and mohawks of the eighteenth century, who are described as prodigals, and, having ran themselves in debt, were constrained to join in factions to defend themselves from the danger of the law. In such a state of things, the sword of justice required something more than a sheriff's officer in making a civil arrest, the warrants having frequently to be backed by a possé of well-armed followers, or he was compelled to call in the military guard to execute it.

Among the strange and preposterous fancies of these times, was the immense number of poor old men and women (mostly) sacrificed at the shrine of witchcraft. It would have been fortunate for humanity if the credulity of this period had gone no further than a belief in *witches*, *jugglers*, and *hobgoblins*. Men who quaked at some unexpected but natural phenomenon, need only mention a few of the many strange fancies that not only attracted the vulgar, but even all ranks of society:—the appearance of a comet, in 1618, actually frightened the English court into a temporary fit of gravity. Such omens as the falling of a portrait from the wall, the croaking of a raven, the crossing of a horse in one's path, the upsetting of salt, the unexpected crowing of a cock, would disturb the most

A general belief in Satanic influence.

swaggering cavalier. From this general dreading of all classes, divination became a thriving trade, and almost every street had its cunning man or cunning woman, who divined for the *wise* by astrological calculations, and for the *ignorant*, by the oracle of the sieve and sheers. When the civil wars commenced, and every hour was fraught with some great event, this natural eagerness to anticipate the future became so intense, that the stars were more eagerly studied than the diurnals; and the cavaliers and roundheads thronged to the astrologers to learn the events of the succeeding week.

The exorcism of devils, was another favourite superstition, not only amongst the Puritans and Church of England, but the clergy of the Catholics took a leading part. When the possessed person began to spout Latin and other learned languages, of which he was wholly ignorant, the Romish priests took the field against the erudite demon in full pontificals, armed with holy water, and the book of exorcisms. This piece of jugglery was a favourite practice of the Popish clergy, and one of the ways they took to recover their esteem with the multitude. Such practices were not wholly confined to these, but the Puritans took the alarm, and set up for exorcists in turn; and as nervous diseases were abundant among them, they crowded round the beds of some crazy hypochondriac, who was supposed to be possessed with the evil one, and whom they stunned by prayers and adjurations. When James became King of England, and assumed the title of Defender of the Faith, he wrote, reasoned, and declaimed upon witchcraft, not to show its absurdity, but to put to death and punishment those who were convicted of so heinous an offence: his courtiers and clergy, sufficiently apt for superstition, echoed the alarm, and the judges revived the application of dormant statutes that had been enacted against sorcery and enchantments, and now commenced the warfare of the *pacific* James, against old women, which proceeded from bad to worse during the whole of this reign and his successors, until the revolution! Nor did the death of James cool the zeal which his folly had kindled. The persecutions became still more rampant under the Long Parliament, and between *three and four thousand persons are said to have been executed for witchcraft* between the year 1640 and the Restoration.

These facts are stated by Dr. Z. Gray, in his *Notes to Hudibras.* The Dr. asserts, that he had a list of their names. While those legal massacres of witches went on with still greater severity in Scotland, where such tortures were inflicted to extort confession from the wretched victims, that even the death which followed was a relief.

The methods too of detecting the crime were strikingly characteristic of the age. If the impotent fury of a trembling beldame vented itself in imprecations against her persecutors, and if they afterwards sustained any calamity in *goods* or *person*, this was a sufficient proof that the woman was a witch. If she talked and mumbled to herself under the dotage of old age, she was holding converse with invisible spirits, and, therefore, she was a witch ; if a boy or girl sickened beyond the skill of some presumptuous village quack, he had only to declare that the patient was bewitched, upon which the child was worried for the name of the culprit, until some one was announced at haphazard. In all such cases the proof was sufficient for the condemnation and death of the accused. In progress of time, professed witch-finders came into fashion : indedendently of witch marks and imp teats upon the person, they could discover an old woman's familiar spirit in the cat that slumbered at her fire, the mouse that rustled in the wall, or even the bird that chirruped at the threshold ; but the grand test was that of Hopkins, the prince of witch finders, by which the suspected person was bound hand and foot,

and thrown into the water, when, if she sunk, there was of course an end of her; and if she swam, she only escaped the water to be put to death by fire. This miscreant, in the years 1645 and 1646, paraded through the country like a lord chief justice; and if any magistrate was so humane or hardy as to interfere with his proceedings, he was threatened by Hopkins in the most imperious style. At last the murderer had his reward according to the strictest impartial justice,—he was found guilty by his own ordeal, and subjected to the same doom as his victims. The extent to which his atrocities were carried, may be learned from the fact, that in one year he hanged *sixty witches* in the county of *Suffolk alone*.

Notwithstanding the turbulent factions that oppressed the real energies of the peaceable citizens, the progress of *improvement* was perceptible in various quarters; and amongst the rest, the silk manufacture attracted great attention, and active exertions were made for establishing it firmly in England. James I., in 1608, issued a proclamation concerning the planting of mulberry trees, in which it was asserted, that the making of silk may be as well effected here as in France; and persons of influence were called upon to promote this object, above 10,000 plants were sent into each county at almost nominal prices. It is supposed, that most of the old mulberry trees now in being, including Shakespere's famous mulberry tree, in his garden at Stratford, were planted in consequence of this proclamation.

CHAP. XI.

THE PROGRESS OF MANUFACTURES.

Introduction and progress of various manufactures—their effects in producing an improvement in the condition of the population—Machinery, with its results, in increasing production, producing distress by its sudden operations—its beneficial results to the community, increasing the resources of the nation.

By carefully tracing society, from its early ages to the middle of the sixteenth century, we have perceived that it has undergone a great variety of changes —from barbarism to villeinage—from villeinage to feudalism—and from feudalism to the free labourer. We are now come to a period in the history of the nation more important, if possible, than either of preceding epochs—the *progress of various manufactures, with the effects they produced on the social, moral, and political state of the community.* We have seen in the conclusion of the last chapter that James I. ordered mulberry trees to be planted in various parts of the kingdom, for the purpose of promoting the successful operations of the *silk trade,* which had hitherto been confined to the more genial climates of France and Italy; its manufacture in England was little known until the year 1554, and a curious law was passed by the tyrannical Mary, for the purpose of assisting the consumption of home productions, "That whoever shall wear silk in or upon his or her hat, bonnet, or girdle, scabbard, hose,

shoes, or spur leather, shall be imprisoned during three months, and forfeit ten pounds:" making however a few exceptions in favour of persons of distinction. The *manufacture* of stockings from *silk* appears about this time to have been making some progress, although, in this country, they were considered a peculiar rarity; for that luxurious and expensive monarch, Henry VIII., was obliged to wear cloth hose, except when, by great chance, he was enabled to obtain from Spain a pair of *silk stockings* for gala days. The broad silk manufacture in this country was occasioned by the Duke of Parma's taking possession of Spain, and the city of Antwerp, where the *silk* manufacture had been carried on for several ages with success; and he, having consigned this city to the plunder of his soldiers, the silk operatives took refuge in this country, settled in Spitalfields, and under the fostering protection of the reigning monarch, carried on their operations with success. Many of the descendants of these banished weavers still exist in that locality.

In 1697, a royal *lustring* company was established in London, with the Earl of Pembroke as governor, for making *silk* "lustring" and "a-la-mode." The company had sufficient influence to procure the passing of an act, prohibiting the importation of foreign goods of this particular description, but before they could derive much profit from their monopoly, the fashion of wearing these silks had begun to change. In 1713 the silk weavers' company petitioned parlia-

ment against the commercial treaty with France, representing the silk trade as being of twenty times greater in extent than it was in 1664, affirming that black and coloured silks were made equal in quality to those of France, and that silk goods during several years had been manufactured in England to the value of £300,000 a year. In 1772 an act was passed granting bounties on the exportation of silk goods for the three following years. The art of *silk throwing* was at this period practised with the greatest success in Italy, where machinery of a particular description was adopted for the purpose, and the weavers of England were entirely dependant on them for the supply of silk thread. In 1715, John Lombe, one of the three brothers who were in business in London, as silk throwsters and merchants, proceeded to Italy, in the hope of obtaining such an acquaintance with the machinery as might enable him to introduce it into this country. Undeterred by the dangers and difficulties of his project, he succeeded in obtaining employment in a mean capacity in one of the Italian mills, where, on account of his supposed destitute condition, he was allowed to sleep in the mill, and in the night he employed himself in making drawings of the different parts of the machinery, from which he had models cut, which he succeeded in bringing in safety to England. A silk mill, with the improved machinery, the first of the kind in England, was erected at Derby in 1719, by Lombe and his brothers. This mill contained 26,586

The silk mill at Derby.

wheels, all turned by one water wheel; but the King of Sardinia having prohibited the exportation of *raw silk*, great difficulty was experienced in procuring a supply of the raw material from other quarters, so that the patent granted to Sir Thomas Lombe, for the sole making and use of the machinery for fourteen years, did not prove very advantageous to him; the Parliament, in consideration, granted him £14,000, on condition of the invention being thrown open to the trade.*

This manufacture was first introduced into England in the fifteenth century. In the reign of Charles II., it appears by the preamble of a statute passed 1666,

* The mill erected at Derby comes nearer to the idea of a factory of the present day than any previous establishment of the kind. The machine had 97,746 *wheels*, *movements*, and *individual parts* working day and night, all which received their motion from one large water wheel, and were governed by one regulator: and it employed three hundred persons to attend and supply it with work. (Paper by T. Lombe, setting forth his claim.) To encourage this new branch of trade, duties were imposed on foreign wrought silk. In 1750, an act was passed (the second which had ever been enacted *against the exportation* of machinery) prohibiting the exportation of tools and utensils used in the silk manufacture. About 1730, our silks appeared to have been held in considerable esteem in various parts of the continent: "In Italy itself" says a writer of this date, "the silks of English manufacture are most esteemed, and bear a greater price than those of Italy; so that at Naples, when a tradesman recommends his silk stockings, &c., he protests they are *right English*. (Keyler's travels, from the German, 1756.) After the treaty of Utrecht, in 1713, French and Italian silks were admitted, under considerable duties, but in 1765 the ribbon and other silk manufacturers procured the re-establishment of the prohibitory system, which was continued for the next sixty years, enforced by heavy penalties. With the increase of population, and the greater demand for luxuries, the home market increased; but an export trade, principally to America, gradually decayed, in consequence, it is said, of *heavy duties* on *raw* and *thrown silk*, though it is more probable, from the cause of the improved manufactures of woollen goods, with an admixture of cotton and silk.

to have given employment to about 40,000 persons, and after the edict of Nantes, in 1685, about 50,000 refugees fled to England, a large proportion of whom settled in Spitalfields, and introduced several new branches of their art. It should be remarked that at this time, foreign silks were annually imported, and from 1685 to 1692, was the period when the British silk manufacture made the most rapid advances. But the refugees, in 1692, obtained an *exclusive patent* for certain articles ; and in 1697, Parliament, at their solicitation, prohibited the importation of French and other European silk goods. This prohibition was extended in 1701 to the silk goods of China and India. These facts should be particularly borne in mind, because they show the *utter fallacy of the opinion that prohibitory duties foster trade.* The truth is, that the silk trade had prospered, and had become of great importance, long before it was subjected to the trammels of protective duties. From the beginning of the eighteenth century, down to 1824, the history of the *silk* manufacture is a series of complaints on the part of the manufacturers to prevent the importation of foreign silks, and the acts of Parliament passed to exclude them. In 1773 the workmen obtained what is called the Spitalfields act, entitling the Middlesex weavers to demand *fixed wages*, to be settled by the magistrates. This act having gradually driven the most valuable branches of the manufacture from Spitalfields, and done incalculable mischief to the trade, was repealed in 1824. Whilst the

prohibitory system was in force, the manufacture was exposed to considerable vicissitudes, the obvious reason of which was the *monopoly* enjoyed by the manufacturers; and the act before alluded to, put a stop to all improvements, so that the manufacture remained stationary in England, while on the continent it was rapidly advancing: the spirit of invention, which worked such astonishing results in the cotton, seems to have been wholly unknown in that of silk.

During the last five years, it is no exaggeration to affirm, that the silk manufacture has made more rapid progress than it did during the whole of the preceding century; most of the machines and processes known on the continent, have been introduced amongst us, and many of them have been materially improved: the imports of raw and thrown silk now, amounting to 4,693,517 lbs., being twice the quantity imported in 1823 (2,432,286 lbs.), which was the greatest importation that took place in any one year. It is very likely that *distress* does exist in several branches of the silk trade, which it is impossible for legislative acts to prevent. Silk goods can hardly ever become an article of general consumption, and will always be peculiarly dependant upon the fickleness of fashion, and the fancy of a few ladies of rank. In this respect it must affect the well being of thousands of operatives; but it should be remembered that the silk trade is fettered, and only partially free.

The *domestic manufacture of woollen cloth* has been prospering in England for upwards of a century.

Establishment of the woollen manufacture.

In the reign of Elizabeth it seems to have been carried on, as the silk-manufacturers still continues to be in Spitalfields. The *clothier* then occupied the place of the *millowner* or *manufacturer*; he was the capitalist who bought the wool, and delivered it to the weaver, in portions of about twelve pounds, to be made into cloth. At the beginning, the manufacture seems to have been pretty equally distributed over the country. In an insurrection that took place in 1525, more than 4000 weavers are said to have assembled out of Lane-ham, Sudbury, and other towns in Suffolk. The manufacture had previously been introduced into Yorkshire. It was confined at first to cities and to corporate and market-towns, the inhabitants of the villages making little more than sufficed for the use of their families. But as the power exercised over trades by municipal corporations and incorporated mysteries declined, the manufacturing arts began to be successfully cultivated in the non-corporate towns, favoured by local advantages; and also in country places, by farmers, graziers, and husbandmen, who commenced making cloth for sale, as well as for domestic use. It was only, however, the coarser cloths that were so manufactured; those of finer quality continuing to be made in populous towns, where the clothier found the most skilful artisans, and could more readily avail himself of the aids derived from a nicer division of labour and larger capital for perfecting his work. Notwithstanding, the rise of the rural or household manufacture was

viewed with great jealousy by the town exclusives, who sought *legislative checks* to impede its progress. In 1551, a statute was passed limiting the number of looms and apprentices that should be kept by clothiers and weavers residing out of cities; and that no country weaver should have a tucking-mill, nor any tucker a loom. Another law of the same year was very oppressive, because it had a retrospective operation, and enacted that all weavers of broadcloths should have served an apprenticeship of *seven years*; which was chiefly directed against the country weavers, many of whom had been only three or four years at the loom before commencing as masters. Except in Wales, the northern counties, and some other specified places, clothiers were not to practise their trade in any city or town in which the art of clothing had not been exercised for the ten previous years. The impolicy or impracticability of these prohibitions was soon experienced: the village manufacture, as an object of *mercantile profit*, took firm root, and has continued up to the present time in one or other district of the island.*

* One *great obstacle* to the progress of the woollen trade was the 5 and 6 Edward VI. c. 22—a statute expressly framed for *preventing the use of* MACHINERY. The acts confining the manufacture within certain limits were speedily repealed, but those regulating the use of looms, and prohibiting the employment of machinery, not only kept their place on the statute-book, but were appealed to until a very recent period. In Somersetshire and Wiltshire, so late as 1802, and in Yorkshire more recently, were serious disturbances on account of the manufacturers setting up gig-mills, or machines for raising the nap on cloth, it being contended by the shearmen, whose employ was thereby superseded, that they were contrary to the statute of Edward VI. Hence, notwithstanding circumstances peculiarly favourable to this manufacture in England, the Flemings and Dutch retained a decided superiority over the English till the end of the seventeenth century.

Introduction of the woollen manufacture.

The WOOLLEN MANUFACTURE forms a very interesting subject in elucidating the changes the operative classes, who work in that department, undergo, by the effects of improvements in machinery, and consequently, of the *destitution* of those portions of the population *who are affected by such improvements*, or by the removal of capital from that particular branch of manufacture. However great, as a national boon, may be the alterations and improvements in various arts, it must be evident, that by a change in the manufacture of articles, by facilitating the processes of increasing the quantity of goods, yet a large number of operatives will naturally be thrown either out of occupations to which they may have been accustomed all their lives, and so incapable of following any other kind of labour, or deprived of employment altogether; and, consequently, themselves and families will suffer great privations, and be *reduced* from comparative affluence and domestic comfort, to *utter destitution and pauperism;* yet, these very improvements, which cause such heart-rending distress to the operative classes, are beneficial to the community at large, and are, consequently, a national blessing, inasmuch as they tend to reduce the prices of manufactured goods to the level of the wages of other classes, who are thus enabled to be clad more comfortably; while the shipping and other mercantile interests are benefitted by the stimulus imparted to the export and import trade, and the revenues of the kingdom increased by the spur thus given to the manufacturing population; and, con-

sequently, more goods will be in request by our being able to compete with foreigners in other markets, and *more hands* will necessarily be required in the various manufactures.

These observations will appear particularly evident, by tracing the progress of the WOOLLEN MANUFACTURE. The first woollen manufactory we read of, was established in Winchester in the time of the Romans, and no doubt, introduced by these conquerors from their own shores: the fleece of the sheep was then valued at two-fifths of the carcase. Spanish wool, as an article of manufacture, was first introduced in the twelfth century, to supply the nobility with fine cloths; but the injury this was considered to inflict on the agricultural interests at home, caused an act to be passed to prohibit the importation, in the reign of Henry II. But *Spanish cloth* was allowed to be imported, and our own wool exported, to Flanders, to be manufactured. But in the fourteenth century, the Flemish manufacturers were induced to establish themselves in this country, and this produced a sensible effect in the production of English fabrics, and the government, considering that all the home-grown wool could be manufactured in England, passed a law to prohibit its further exportation; and the farmers of that age having lost the stimulus for improving their breed of sheep, soon began to experience the effects of this prohibition, and were loud in their complaints against their rulers. It was always considerd to be the principal manufacture of the kingdom, and

Quantity of woollen cloths at different periods.

every encouragement was given to it by the various ruling monarchs, until we find, that in the 18th Charles II. cap. 4, it is enacted, that no person should be *buried* in any sort of grave dress not entirely composed of *wool*, under a penalty of five pounds, to be paid to the poor of the parish; and this act, having been found inoperative, in 1678, the 30th of the same monarch, an act was passed requiring persons in holy orders to take an affidavit in every case from a relative of the deceased, at the time of interment, showing that the statute had been observed: and this act has only been repealed within these few years. About the year 1668, *the Dutch loom* was introduced into the kingdom from Holland, and from this country derived its name: but in the West Riding of Yorkshire, the woollen trade has been most extensively and prosperously carried on, until, in the year 1785, there were manufactured in that district, 157,275 pieces, containing 4,844,855 yards of broad-cloth, and 116,036 pieces, containing 3,409,178 yards of narrow cloth; yet, great as this amount is, we find, that in ten years after, (1795), no less than 250,993 pieces of broad-cloth were there manufactured, containing 7,759,907 yards, and 155,087 pieces, containing 5,172,511 yards of narrow cloth; while, in the year 1800, there were manufactured 285,851 pieces, containing 9,263,966 yards of broad, and 169,262 pieces, containing 6,014,420 yards of narrow cloth, independently of kerseymeres. It is estimated, that this must have taken 600,000 packs of wool, which, at the price of

£11 per pack, would amount to £6,600,000 : and this wool when manufactured, produced no less than 15 millions yards of cloth, kerseymeres, serges, and other woollen goods, which may be estimated at least to 20 millions of pounds sterling.*

An intelligent manufacturer, who was examined before a committee of the House of Commons, stated, that the *introduction of machinery* had so greatly abridged labour in the various processes which pre cede weaving, that *thirty-five* persons were able to perform, in 1800, as much work as would have required *one thousand six hundred and thirty-four* to perform in 1785; or that *one* person, by the aid of machinery, could perform, in 1800, as much work as

* A great change has taken place within the present century, both in the qualities of the wool imported, and the countries from which it is brought. Previously to the year 1800, our average imports of wool did not much exceed 3,000,000 lbs., mostly brought from Spain, but in this year they amounted to 9,000,000 lbs.; and the quantity imported has gradually increased from that year to the present, although we get it now from Saxony instead of Spain, and no inconsiderable importation from our own colonies in Australia. The late King of Saxony, when Elector, first introduced the Spanish breed of sheep, Merino, into his dominions, and they seem to thrive better in Germany, than they do in Spain—the Spanish wool trade has consequently declined, while the German trade has increased. In 1812, the first importation of German wool (Saxony) took place, and was 28,000 lbs.; but in the year 1814, it increased to 3,432,456 lbs.; in 1820, it was 5,113,442 lbs., and in 1825, it reached to the enormous quantity of 28,739,661 lbs.; but this being the year of over-trading, it declined, in 1826, to 10,545,232 lbs.; in 1834, it increased to 25,370,106 lbs., and in 1840, it was 21,812,664 lbs.; and from our Australian territories, it was 9,721,243 lbs., while our own produce was 136,617,120 lbs., independently of the quantity imported from various other foreign countries, amounting to more than twenty millions of pounds. This cannot but convince any reflective mind of the vast importance of this branch of manufacture: as well as show the effect it must have on the landed interest, as not less than 23,759,509 sheep existed in England and Wales in that same year.

forty-six could have done in 1785. That the capital invested in mills, machinery, &c. appropriated to the woollen trade, was not less than six millions of pounds sterling, and THE TOTAL NUMBER OF PERSONS OF ALL AGES, IN ENGLAND, IN THIS BRANCH OF MANUFACTURE ALONE, WAS NOT LESS THAN 1,500,000! So greatly does an improvement in machinery not only produce wealth to the mill-owner, but it increases the number of operatives in such particular branch of manufacture where adopted: and, of consequence, is a *national*, as well as an *individual blessing:* some however, who may have long continued to work in a particular branch, will necessarily suffer great privations, if not destitution. But the general adoption of machinery will enable the manufacturers to become large capitalists, as is already the case in Lancashire and Yorkshire; and the influx of money will enable the farmers to improve their breed of sheep, and bestow some culture on the extensive mountainous tracts that as yet have been committed to the care of nature alone. "The present infant factories," says a late writer, "contain the rudiments of future prosperity: one successful effort will produce many vigorous exertions: the manufacturers becoming rich, will not confine their export trade to Liverpool and London alone, but will extend them to various localities—and thus, the profits of an extensive national concern will circulate through and invigorate every part of the empire."

Scarcely any of the manufactures has received so

great a benefit from the improvements in science, as the art of *dyeing* cloth,—by the application of the laws of chemistry, processes which were formerly of long duration, and very tedious in their application in dyeing, are speedily, as well as effectually, performed. In former periods, after cloth had been woven, the manufacturers were at a loss to give it a particular hue, and were obliged to export it to Holland to have it dyed; but at length, in the reign of Charles I., a Dutchman, who understood this art, was induced to settle in London, and he established himself at Bow, and carried on his business as a dyer. He taught the English his art and mystery, and practised first the dyeing of that beautiful scarlet which was so much prized at that, and is so at the present period, and for which the foreigners were then so celebrated in exclusively producing.* By an act of the legislature, in Elizabeth's reign, the use of logwood as a dye was

* Improvements in the art of dyeing, and in the modes of obtaining a supply of materials, occupied much of the attention of the early members of *the Society for the Encouragement of Arts, Manufactures, and Commerce*, who, prior to the publication of their first volume of *Transactions*, in 1783, had expended upwards of £1500 in promoting the culture and preparation of madder in this kingdom: the foreign growers and importers having, on the supposition that it could not be produced in England, raised that necessary article to an exorbitant price. English madder was, in consequence of these exactions, produced, of quality equal to the foreign: and though experience has shown that it cannot be cultivated so cheaply as to compete with the foreign, the effect of the experiment was to reduce the price of that procured from Holland and other countries,—the growers having been convinced that we could raise any quantity, and of the best kind, whenever the price should rise to an amount sufficient to engage the attention of British husbandmen: and thus an important saving was effected for those engaged in dyeing and calico-printing.

prohibited, until the year 1640, when this act was repealed: the preamble of which states, "That the ingenious industry of these times hath taught the dyers of England the art of fixing colours made of logwood, so as, by experience, they are found as lasting and as serviceable as the colours of any other wood."

But, by the aid of modern chemical science, new processes are now introduced, which give to cloths, wools, and cottons, the most brilliant and lasting shades.*

The remotest ages of antiquity lay claim to the invention of EARTHENWARE: probably it was carried to a higher point of improvement than any other of the ancient manufactures of the world. The business of creating from a mass of clay, vases, ewers, and urns, which, in the homely language of the potter, is termed *throwing*, has always excited admiration: one moment, an unfashioned lump of earth is cast on the block, and in the next, it is seen starting into forms of elegance and beauty. A simple wheel, and

* It is recorded, that a bleacher in Lancashire received 1400 pieces of muslin on a Tuesday, which, on the Thursday immediately following, were returned after having been dyed, to the manufacturer, at the distance of sixteen miles, and were packed up and sent off on that very day to a foreign market. And it has been narrated as a fact, that a celebrated Scotch clergyman, still living, took an opportunity, during the infancy of the modern system, to remove some cloth secretly from the ground of one of his humble countrywomen, and, having dyed it by the new chemical process, returned it in a like way, after a few days. The consternation of the *gude-wife*, on discovering the supposed loss of her cloth, was thus cut short by her bewildered surprise, in finding it restored dyed to her hands in so short a time, as to leave her no explanation of the mystery, excepting on the supposition of *fairy agency*.

hands untutored in other arts, effect this wonderful change. The means appear to be scarcely adequate to the end: hence the poet, with seeming truth, asserts—

"That magic hands performed this work of art."

The plastic power of clay was early discovered, and appears to have been employed in the most ancient times, as it is still in Egypt, to receive the impression of the seal, the affixing of which on property, was probably considered, even at that period, as a legal protection. Job, in one of his poetic similies, says,—"It is turned, as clay to the seal." (Chap. 38, v. 14.) Many centuries before the art was practised in Europe, the Chinese had brought it very nearly to the degree of perfection, which their porcelain now exhibits. Without entering into detail on the progress the art received in the various countries of ancient date, whose remains still excite the admiration of the curious, in England, we may date the introduction of potteries to the Romans, though the ancient Britons had been supplied by the Phœnicians with such articles, in exchange for their metals; but there are so many vestages of Roman manufacture, as to corroborate the belief of our being indebted to that people for the art of the potter. In the neighbourhood of Leeds, the remembrance of a Roman pottery is still recorded, in the name of the village which rose upon its site—Potter Newton. Although introduced into Britain at so early a period, the potter's art long remained in its rudest state: the coarse red clay ware only was made, but was not of

Introduction of Wedgwood ware.

sufficient beauty or utility to be received as a substitute for utensils and vessels of wood and metal,—(the remembrance of wooden platters, and the bright ranges of pewter dishes and plates, are almost getting past the knowledge of the present generation); and earthenware, in its improved state, has since been in every dwelling, even in the abodes of the humblest labourer. Earthenware and china are now essential to all, and not only in England, but English china and earthenware are introduced, as necessary appendages, in all the civilized regions of the world. This change was principally effected by the industry and comprehensive mind of one individual—Josiah Wedgwood, the founder of the modern *Etruria.* As the history of this individual is so connected with the improvements in the art, it may be as well to take a glance at its progress at a little earlier date :—

The pottery district of Staffordshire appears to have been famous for earthenware from time immemorial, though it produced nothing but coarse wares until the end of the 17th century, and even then to a limited extent only. It has been said, that the vessels made in this district were, at that time, sold only where they could be carried by hawkers. In Shaw's *History of Staffordshire Potteries*, it appears, that pulverized lead-ore was used for glazing about the year 1670; and the method of procuring large coarse ware, called *saggers*, was to burn it in the kiln to protect it from injury. If this be correct, it indicates the production of small and delicate articles even at that time. He states also, that a rude kind of white stone ware was produced in 1685, by Thomas Miles, of Shelton. At the commencement of the eighteenth century, or, according to Shaw, in 1690, two brothers, of the name of Elers, came over from Holland, and established themselves at Bradwell, in Staffordshire, where they introduced considerable improvements in the art. The discovery of a bed of red clay on the estate on which they settled, enabled them to manufacture a fine kind of unglazed red porcelain: and to them is attributed the method of glazing earthenware with salt, which was long extensively practiced in the Staffordshire potteries, and which they are commonly stated to have used with brown stone ware only, the white not being

introduced until a subsequent period. This discovery was accidental:—At Stanley Farm, a short mile from the pottery of Mr. Palmer, at Bagnall, the servant was boiling a strong lixicum of salt, to be used by the family in curing pork, but during her temporary absence, the liquor effervesced and ran over the sides of the vessel, quickly causing it to become red hot; the muriatic acid decomposed the surface, and when cold, the sides were partially glazed. The brothers were much opposed by the inhabitants of the neighbourhood, who were jealous of their successes and the secresy of their operations, though the ostensible ground of opposition is commonly stated to have been the annoyance caused by the disagreeable fumes from the kilns during the progress of glazing; in consequence, the brothers left the potteries, but their processes were carried on by a person named Astbury, who became possessed of their secrets, by feigning mental imbecility, and obtaining employment in the works at Bradwell, where, it appears, these ignorant and stupid persons were employed in preference to others, in order that the secrets of the manufacture might not be divulged; and he acted his part so well, as to acquire the knowledge he desired without suspicion.

The next important improvement is said to have originated with Josiah Wedgwood, who was travelling on horseback to London, about the year 1720, when he observed some disorder in his horses eyes; an ostler, at Dunstable, thought he could cure it by means of calcined flint reduced to a powder, and, accordingly, put a common black flint stone into the fire. The potter, observing its whiteness when taken out, conceived an idea of improving his wares, by mixing this substance with the whitest clay he could procure, and, therefore, sent a number of flints from that neighbourhood, where they abound among the chalk, to his pottery. By mixing tobacco-pipe clay with calcined flints, he succeeded in producing a white stone ware, very superior to any that had been made before; and his example was soon followed by other potters. At first the burnt flint was reduced to powder by manual labour, and in a dry state: but the dust caused such an annoyance and injury to the persons employed, that a mill was contrived by Brindley, for grinding them with water. (Shaw mentions three persons claiming a share with Brindley in the honour of this improvement.) One instance, among many, of the *advantages of machinery*, not merely to lighten labour, but also to render innoxious a process formerly productive of distressing diseases. Wedgwood was indefatigable in his researches for varieties of clay, and the comparative value of its properties was ascertained, together with the true proportion of calcined flint with which such a variety would unite, and the degree of heat to which each would be submitted. The glazing also gave rise to a most anxious and assiduous investigation on the part of these diligent labourers.

Such was the eminence Wedgwood reached, as a manufacturer, that he carried every thing before him:

his wares displaced foreign china in his own country, and were spread over every part of Europe, not only ornamenting the palace, but filling the cottage with means of comfort and cleanliness. No ware could be sold that had not his name stamped on each article. Wedgwood became a generic term, the question being always asked, on the continent, "Have you any Wedgwood?" He secured this preeminence by the superiority of his productions, and not by exclusive advantages. He always steadily refused his inventions to be patented, saying, "The world is wide enough for us all." For centuries previous to the time we have been speaking, the manufacture had, in this country as well as in Europe, remained unimproved. From the east, the wealthy and luxurious of the western hemisphere were supplied with porcelain, valued on account of its rareness rather than its beauty, while the humbler ranks of society sought no other than metal or wooden domestic utensils, unless they added to these some of the rude works of their native potters. At length, in France, Germany, and Italy, princes and nobles, as if ashamed of the neglect the art had experienced in the most civilized portion of the world, founded in their respective countries *porcelain manufactures*. These became of considerable eminence—the Sêvre, Dresden, and Berlin porcelain grew, in time, to be the admiration of Europe, and was mingled with the works of China, which became less prized. But the benefit conferred by these royal and noble establishments was limited: wealth was

The neglect of Wedgwood's education.

expended, and talent devoted to them; but their works never circulated throughout all ranks, nor effected any change in domestic life: they have been confined to the use only of the noble and the rich. These manufacturers cannot claim the merit of such general utility as those of England, conducted by a different class of men, and upon different principles,—here, unaided by the hand of power, without wealth, sometimes almost without education,—these, the founders of the British manufactures, have often, as in this case, started from the level of humble life into prominent and commanding positions, dispensing means of subsistence, and opening prospects of improved condition to thousands, have acquired an influence in their day which nobles might covet:—

Amongst this class of benefactors to their race, the late Josias Wedgwood stood preeminent; his early education, as was usual in his sphere, was very limited: education in his day was supposed to be incompatible with a man of business. The disadvantage of this narrow system was early perceived by the intelligent Wedgwood, and his first step to the eminence he afterwards attained, was to educate himself. Though apprenticed to a potter, he found leisure for acquisition in literary knowledge. In 1763, he produced a new kind of cream-coloured ware, surpassing the manufactures of France and Holland, in texture and durability—better able to bear the alternation of temperature, and covered with brilliant transparent glazing. This new manufacture, which, under the patronage of the Queen, was commonly called "the Queen's ware," being supplied at a moderate price, quickly became so popular as to supersede foreign wares, and was universally used by all classes in this country, and even exported in large quantities, to those very countries whose productions it had supplanted in England.

The universal celebrity of this kind of ware, which was known on the continent as *English ware*, is testified by an eminent foreigner, M. Faugus Saint Fond,

who, writing about the commencement of the French revolution, says,—

"Its excellent workmanship—its solidity—the advantages which it possesses of sustaining the action of fire—its fine glaze, impenetrable to acids—the beauty and convenience of its form, and the cheapness of its price, have given rise to a commerce so active and so universal, that in travelling from Paris to St. Petersburgh, from Amsterdam to the further part of Sweden, or from Dunkirk to the extremity of the South of France—one is served, in every inn, upon English ware. Spain, Portugal, and Italy, are supplied with it; and vessels are laden with it for the East Indies, the West Indies, and the continent of America." *

A statement made by Wedgwood, in 1785, before a Committee of the House of Commons, affords some statistical information, by which it appears, that the number of persons employed at that time was from 15 to 20,000, but that these formed but a small part of those dependent upon it, many more being engaged in raising coal for fuel, digging and preparing clay and flints, and conveying the materials and manufactured goods to and from the factories. Wedgwood estimated, that from 50 to 60,000 tons of clay and flints were annually conveyed to Staffordshire; and he stated, that about five-sixths of the whole quantity of ware made was exported: a fact affording a striking contrast to the state of the manufacture at the commencement of his useful career. The collection of antique vases, brought from Italy by Sir William Hamilton, opened a new field for Wedgwood's imitative powers, and he discovered the method of painting on vases, without the glossy appearances of ordinary painting, on porcelain and earthenware,—an art which had been practiced by the Eturians, but lost since the time of PLINY. In connexion with Chishelm, the chemist, who applied himself to this manufacture, and other scientific men whose services he engaged, it appears, that the art of transferring printed devices to pottery, was introduced by M. Corver, an engraver, employed by Sadler and Green, of Liverpool, having invented a method by which devices from engraved copper plates can be printed on the glaze, (now called black printing). Wedgwood employed the wagon of Morris, the carrier, of Lawton, once a fortnight, to take down a load of cream-coloured

* At the time of YOUNG's visit to the Potteries, a few years after the coloured ware was introduced, he informs us, that there were about 300 houses, which are calculated to employ 20 hands each, or 6000 in the whole; but that, if the persons engaged in the preliminary process were included, the number of persons employed could not be far short of 10,000, and it was daily increasing. He says, "that the common clay is used for the ordinary sorts; the fine kinds are made of the clay from Devonshire, Cornwall, and Dorsetshire, chiefly from Bideford, but the flints from the Thames are all brought rough by sea, either to Liverpool or Hull, and so by Burton."

Manufacture of crucibles and retorts.

ware to be printed in this improved manner, by Sadler and Green, and it returned with the load previously taken.—(SHAW's *History*.) "The specimens," he adds, "are beautiful, and a tea service, well authenticated to have been sent down in 1767, from the Bell works, is excellent in quality, and very fine in embellishment." SHAW further informs us, that black printing is said to have been practiced at Hanley, by a person named Baker, before it was commenced by Sadler and Green; and also, that the blue printing was introduced soon afterwards, being first practiced by a person named Turner, of Caughby, in Shropshire, who is said to have completed, in 1780, the first blue printed table-service in England.—*Pol. Hist. England.*

There is another branch of this manufacture that deserves notice, and this is the article of crucibles and earthen retorts for chemists, essayers, and melters of metals—a class of utensils which was formerly imported, but which has, since 1782, become a considerable branch of British manufacture. The Society of Arts, having bestowed some rewards to promote the discovery of suitable materials for making such vessels in this country, were gratified to find that a manufactory had been established at Chelsea, where they were made, not only for home consumption, but also, to a considerable extent, for exportation; the only place where such articles were before made, in Europe, was Hafner's Zal, (*i. e.* Potter's Place,) Passou, near Regensburg, (Ratisbon), in Germany. MACPHERSON remarks, that "*the East India Company had more than once destroyed the manufacture of porcelain in this country*, by importing the China wares *without any profit*, when any new article came in contact, in order to crush such manufactures in its infancy. But, however," he observes, "the British has stood its ground, and attained such superior elegance, that it was shipped for America, where the Chinese porcelain

could be had much cheaper than in this country, and it was even carried to China itself."—*Annals of Commerce.*

The HARDWARE manufacture was originally established in Birmingham. When LELAND visited it in 1640, it had only one parish church; he says—

"There were many smiths, that used to make knives and all manner of cutting tools, makers of bitts for horses, and a great many nailors; so that a great part of the town is maintained by smiths, who have their iron and sea coal out of Staffordshire."

One of the most flourishing manufactures of Birmingham, was that of the shoe-buckle. When this ornament was in fashion, about 2,500,000 pairs were annually made here, giving employment to about 5000 artizans. The buckle was worn for about a century, in England: it came in not much larger than a horse-bean, with the Prince of Orange, and from taking all shapes, it expanded into such an unnatural, ugly, and troublesome disproportion, that the eye rejected it, and the foot spurned it away, and so it went out of fashion: and the inhabitants have been accustomed to execute orders for implements of war,* and of husbandry, carpenters' and other tools, for mechanics, kitchen utensils, and similar articles. At the *Restoration*, commenced the second period of the manufacturing history of Birmingham, when a tra-

* The increase of the manufacture of these instruments of destruction, is authentically stated, that from 1805 to 1815, there were manufactured, for Government alone, 3,079,120 stand of arms; and during the same period, 1,000,000 for the East India Company, exclusive of private arms, trading guns, fowling-pieces, &c.

velled king, and a luxurious court, introduced a taste for articles of a more elegant and costly description than those which had been previously in demand; thus she proceeded in her prosperous career of industry and skill, to that important era—the discovery of the steam-engine. *The* manner of operation on the iron ore of the country, whom Dr. PLAT, in his *History of Staffordshire*, published in 1686, makes a contemptuous allusion to, by stating, that our ancestors, in their imperfect way, could only make, at one furnace, 100 lbs. per day. This imperfect mode consisted, as he tells us, in getting the iron to the required temperature, by the strength or weight of the workman, through the means of blasts, or treddles acting on a sort of bellows—the power of the horse, nor of the more effectual steam-engine, not having been yet applied. The improved mode of working iron, when PLAT visited and described the country, in the reign of James II., was not known, for the Dr. asserts, that a single furnace, by the assistance of two vast pairs of bellows, compressed alternately by a water-wheel, would produce *two* or *three tons of iron* in twenty-four hours; and, with the assistance of the slitting mills, seemed to leave nothing further to be discovered. The Dr. asserts, triumphantly, that "the iron works are now exercised in perfection." One of the most remarkable of the contrasts which exists between the state of trade at that period and at present, as described in the work of SMITH'S *View of Birmingham and its Vicinity*, is afforded, by the wide distance, at the

Charcoal extensively used in manufactures.

former period, of the several establishments for melting the ore. Charcoal being the only fuel then used, it was necessary to have the furnaces in neighbourhoods where this necessary article could be procured, and where, at the same time, a stream existed with sufficient fall to turn the wheels that should act on the bellows, raise the hammer, or whirl the rollers. The performance of one of these operations was generally as much as could be effected by the forcing of water. From the operations of these causes, the furnace was, of necessity, placed at a distance from the mine, and the forge and the mills were far separated, in order to keep the consuming power apart. The indispensable requisites of wood and water, induced the establishment of iron furnaces in situations where, as soon as coke and steam superseded their use, all trace of the iron manufacture vanished to other counties :—

The 17th century was drawing to a close, and still no considerable change in the state of this manufacture had taken place. Previous to 1780, the vast bellows, alternately compressed, were still employed with indifferent success, to produce the continuous blast at the furnaces; the atmosphere was comparatively free from smoke: the ore, when raised, was borne to the nearest woodlands, in order to have the benefit of charcoal. This fuel, from its lightness and cumbersomeness, was more difficult of conveyance in suitable quantities, through the deep and narrow roads of the time, than the ponderous compact and more manageable mineral itself. The removal was, therefore, still made; and along the profound lanes, of which here and there a few traces still remain, the ore was conveyed, in various directions, towards the existing furnaces, on the backs of horses, perpetually moving in long array, to keep up the indispensable, though dribbling supply; and such was the tranquil character of the trade in those days—so little of the stormy competition of later years existed—that the additional price laid on the wrought material was unthought of. The capital employed at that period was considerably smaller than at present; and a furnace, a forge, or a rolling or slitting mill, was each singly a sufficient undertaking for

an individual speculator. In many parts of France, at the present day, the absence of coal still induces similar removals, which produce similar effects in keeping up the price of iron in that country.

The increased scarcity of timber, which prevailed in the districts where the smelting of iron had been carried on for several centuries, became the subject of legislative provisions, with a view of maintaining the supply of fuel; but these enactments had but little effect in accomplishing the object; and, therefore, the rise in the price of iron indicated the necessity of resorting to some other remedy. It was proposed by some, that the waste lands of the kingdom should be planted; and others suggested, that the forests of our American colonies pointed out that quarter as a fitting place to which the business of smelting should be transferred. The woods of Ireland, being less exhausted than those of England, attention was directed to that country, and for some time considerable quantities of iron were smelted there. The plan of offering some public reward to any individual who should discover the means of making bar-iron with coal, might, it was also thought, be the means of relieving the iron masters from these difficulties. The patent which Lord Dudley had obtained, in 1619, for accomplishing this very object, seems to have been forgotten, while the works which he had established had been destroyed by an infuriated mob. In 1740, however, Lord Dudley's process seems to have been revived, and iron was made from pit coal, at Colebrook Dale; but in 1747, the art seems to have been so litte known, that it had not reached the author of a paper on the subject, in the *Philosophical Transactions* for that

year, although he resided in the above-mentioned district. He states, however, that iron was made by *one iron-master* in Colebrook Dale, either brittle or tough, at pleasure, by means of pit coal.—(*Phil. Trans.* vol. 9, p. 305.) In 1740, the quantity of pig iron made in England and Wales, was estimated at about 17,000 tons. In 1719, the iron trade was deemed the third of our great national manufactures; and the number of persons it is said to have employed, was 200,000. The furnaces in Kent and Sussex, were not entirely relinquished at this period, where, as well as in some other parts of the kingdom, iron was made by the fire of charcoal. But iron works were now established in some of the midland counties, near the great coal districts, where it has been discovered that iron ore and coal lay near, and in many instances contiguous to each other; those at Rotheram, in Yorkshire, in 1750, and the great works at Carron, in Scotland, in 1760.

In 1740, the quantity of pig iron manufactured, amounted to about 1700 tons, produced by 59 furnaces. In 1750.... 22,000 tons.

1788....	68,000	..	by 85 furnaces.
1796 ...125,000		..	by 121 ..
1806 ...250,000		..	by 169 ..
1820 ...400,000		..	— — unknown.
1827....690,000		..	by 284 furnaces.

The following are the quantities produced in 1827, in the different districts:—

Staffordshire.....	216,000	produced by	95 furnaces.
Shropshire	78,000	....	31 ..
South Wales.....	272,000	.....	90 ..
North Wales	24,000	.....	12 ..
Yorkshire	43,000	.....	24 ..
Derbyshire	20,500	.....	14 ..
Scotland	36,500	.....	18 ..
	690,000		284

Value of the iron manufactory.

About three-tenths of this quantity is used as cast iron, and the other seven-tenths as wrought iron, being formed in bars, bolts, rods, &c. The export of the different sorts of iron, amounts, at present, to about 110,000 tons, which, at £10 per ton, would be worth £1,100,000. In 1767, the iron exported from England amounted to only 11,000 tons, and in 1806, to not more than 28,000. The value of pig iron then, produced £6 per ton. The prices of iron have lately so much declined, that pig iron, which in 1824 and 1825 sold at *twelve* to *fourteen* pounds, fell, in 1826, to £8 or £9, and it is now worth only from £4 10*s.* to £5, per ton. So variable has been the demand and supply, though the quantity is yearly increasing, by fresh impulses of ingenuity— being used in ship building, railroads, &c., to an unbounded extent, that our forefathers had not the least idea of. "Of that one contemptible mineral," says Mr. Locke, speaking of iron, "he who first made use, may be truly styled the father of arts and the author of plenty."

The extension of this manufacture in earlier times, was greatly impeded by the destruction of the forests, occasioned by the increase of population and agriculture; and it was not until the reign of Geo. III., that immense stores of mineral fuel were rendered available, instead of charcoal, for the purpose of smelting iron ore. In the reign of Elizabeth, acts of parliament were passed to restrict the felling of timber for the purpose of making iron, and to prohibit the establishment of new iron works within twenty-two miles of London: and the prohibition was subsequently extended to every part of the counties of Surry, Kent, and Sussex. An additional reason for this interference to prevent the total destruction of timber, was afforded by the growing importance of the navy: this circumstance led to the promulgation of several plans for the substitution of pit coal, of which the patent by Lord Dudley, early in the seventeenth century, appears to have been considered of importance even then, as it was exempted from the operation of

Coal first introduced in the iron manufacture.

the act passed in the reign of James I., for the abolition of monopolies. This furnace, which was constructed on a limited scale, became the object of jealousy to the manufacturers on the old system, who, doubtless, foresaw the removal of the iron manufactories from its accustomed localities, to those in which coal was abundant, and they desired to retain the profitable monopoly in their own hands. Deep rooted old prejudices, may account for the length of time that elapsed before the use of coal became common. In 1719, a century after Lord Dudley obtained his patent, the writer of a tract, quoted in ANDERSON'S *History of Commerce*, states, "that the waste and destruction to the woods in the counties of Warwick, Stafford, Worcester, Hereford, Monmouth, Gloucester, and Salop, by these iron works, is not to be imagined." And, in addition, he says, "there will not be any oak left to supply the royal navy in a few years, nor shall we have a supply of bark for tanning." Another difficulty arose, by the less combustible character of coke as compared with charcoal, and its different chemical properties. Alterations in form and management of the furnaces were required, and it was necessary to provide a more copious and powerful injection of air, in order to use the coke for smelting. Ignorance, as to the real cause of failure, operated long and seriously in impeding the progress of this improvement. But all the difficulties were at length surmounted, by enlarging the height of the blast furnaces, so as to prolong the descent and contact of the ore

and coke, and more especially by the application of the steam-engine, which rendered the working of the blowing machinery at once regular and powerful. The use of the steam-engine for this purpose, is very important in all cases where there is not an ample supply of water capable of working the blast under all contingencies of draught and flood; for instances have occurred, in which the *whole of the contents of a furnace have become a solid mass*, owing to the accidental stoppage of the blast.—*(En. Brit. Art of Iron Making)*. Next to the Colebrook Dale work, the Carron works of Scotland were amongst the earliest where iron-stone was smelted by pit coal, founded by Dr. John Roebuck, who had made discoveries by which that operation might be facilitated. His capital being employed in other works, especially in the manufactory for oil of vitriol, at Prestonpans, it was originally proposed to construct iron works on a limited scale, in the vicinity of the last-mentioned establishment; but his experiments led to such flattering prospects of success, that he and his partner were encouraged to project extensive works for the smelting and manufacture of iron. The required capital was subscribed by relations and friends, and Roebuck selected a convenient spot on the banks of the river Carron, in Sterlingshire. This site possessed the important advantage of coal and iron ore in its immediate vicinity, while the river supplied water-power for impelling the machinery, and navigable communication with the sea. Smeaton was employed in the

construction of the water-wheels, blowing-machinery, &c., and Watt also assisted in a similar manner, though, probably, at a later date. The first furnace was blown on the 1st of January, 1760, and the works soon attained importance and celebrity. Great improvements were immediately introduced on the opening of the works, consisting in supplying a blast from three or four cylinders, which was much more regular than that obtained from bellows.

It would be difficult to say precisely how far Roebuck deserves credit for invention, as regards the improved processes carried on at Carron, because many plans had been suggested, and experiments made, before the establishment of these works; but, in the memoirs of his life, by JARDINE, it is observed, that he was certainly "among the first who, by means of pit coal, attempted to refine crude or pig iron, and to make bar iron of it, instead of doing it by charcoal, which was the former practice." The Carron works proved of great benefit to the industry of Scotland, giving employment to some hundreds of persons, and leading to the establishment of several other iron works; and they became the principal manufacturers of cannon, for the supply of Russia, Denmark, Spain, &c.; these were cast solid, and bored by a drill worked by the whole force of the river Carron The quantities were so considerable, that the government was unwilling to let them be carried by ordinary ships, lest they should fall into the hands of the American cruisers Of later years, their stores were sent all over the kingdom. YOUNG mentions one manufactory of this kind, about five miles from Newcastle-upon-Tyne,—he says, the greatest of the kind in Europe. At this establishment, several hundred persons were employed, their wages amounting to £20,000 per year. But in this, it appears, foreign iron was principally used, mostly from the Baltic. A considerable quantity of American iron was used also, at their works, being considered superior. The articles enumerated as made here, are anchors, which were made as large as seventy cwt., carriages for cannon, hoes, spades, axes, hooks, and chains; and it is stated, that the principal work was for exportation, particularly for the East Indies. Rolling machinery, scissors for cutting bars of iron, cranes for removing anchors to and from the fire, and a tilt hammer of immense weight. He, nevertheless, states an opinion, that much labour might be saved by the further use of machinery. The same writer visited the iron works of Rotherham, in Yorkshire, which supplies both wrought and cast iron—the former being partly for use at Sheffield. He observes, "near the town are two collieries, out of which

the iron ore is dug, as well as the coal to work it with." Accordingly, many of the cannon used in the navy, in the American and French wars, were made in this town.

The use of pit coal in the preparation of iron, led to the establishment of the iron manufactories in South Wales, about the year 1755; the first smelting furnace was erected at Cyforthfa, near Myrther Tydvil, by Anthony Bacon, M.P. for Aylesbury, who obtained a long lease of the iron and coal mines, in a large tract of land in that vicinity. This gentleman contracted with government, during the American war, for the supply of cannon to the arsenals, from which, and other similar undertakings, he ultimately realized a large fortune. At the close of the war, the contract was referred to the Carron works.—(*Pic. His. of Eng.*) Cast iron, which from its brittleness and unsound texture, had been used to a very limited extent, was now often made to take the place of brass or of wrought iron. Smeaton made the first great axis of a windmill of this material, in 1751, and continued the practice through, without any great advantage in point of durability, until he procured his castings from Carron. In 1769, he made the first axis of a water-wheel at this establishment, and he subsequently used cast iron for cogs, wheels, shafts, and framing generally, whenever he was left at liberty to choose his materials.—(*Stewart's Anecdotes of Steam Engines.*)

The introduction of steam-engines, led to improvements in the manufacture of both wrought and cast iron for the construction of the machinery and the boilers; the application of cast iron, for bridges, also began about the same time. The first iron bridge, on a large scale, erected in this or any other country, being that over the Severn, at Colebrook Dale.

Manufacture of cutlery.

In 1785, the manufacture of iron and steel had attained such importance, that an act was passed, forbidding the exportation of any of the tools or engines used in it. There were, it is stated, even in 1781, more than 50,000 tons imported from Russia and Sweden annually —(*Hist. of Commerce.*) The manufactures of Sheffield and Birmingham were greatly extending. The very early establishment of the manufacture of cutlery, at Sheffield, is indicated by CHAUCER, where he says, of the *Miller of Trompington*,—

"A Sheffield thwittle bare he in his hose."

From which it would appear, that Sheffield knives, or *thwittles*, were famous as early as the fourteenth century.

In 1761, ANDERSON says, "there are above six hundred master cutlers there, who are a corporation, by the name of the *Cutlers of Hallamshire*, of which district in Yorkshire, Sheffield is the principal town." The place is stated to employ about 40,000 persons in her iron manufactures, though not all resident. Of the various classes of workmen employed in the production of cutlery, the grinders are stated to have made the greatest earnings, from 18*s*. to 20*s*. per week, owing chiefly to the danger attending their employment. The grindstones, which were of great dimensions, were often turned by water-wheels, the velocity being increased by a train of toothed wheels, until it became so great that the stones occasionally flew to pieces, killing or wounding the men near them. In other branches, the workmen earned from 1*s*. 6*d*. to 2*s*. a day; and the razor polishers and others on similar work, as much as 10*s*. 6*d*.—(YOUNG's *Tour*, v. 1. p. 123.) Amongst the numerous articles manufactured here, there is, likewise, reason to believe, that snuff-boxes, candlesticks, &c. were made of a sort of coal called Kennell, or Channel coal, formerly got near this place. Dr KNIGHT, in the *North of England Medical Journal*, states, "that the fork grinders, who use the dry grindstones, die at the ages of 28 to 32, while the table knife grinders, who work on wet stones, survive to between 40 and 50." Dr. K's. paper, very properly, alludes to the combination of injurious agents and circumstances. It is not merely the pernicious employment, but the want of space, and ventilation of the apartments where the men now work:—the want, moreover, of that exer-

cise in the open air, which they formerly took in going to work, and in returning—and, finally, the intemperance which results from their congregation, and still more, from their desperation of life. It appears, that in 1822, out of 2,500 grinders, there was not 35 who had arrived at the age of 50; and, perhaps, not double that number who had reached 45: and, out of more than 80 fork grinders, exclusive of boys, it was reported, there was not a single individual 36 years old. Draw filing cast iron, is also a very injurious occupation—scarcely a filer can be found in health, as few can bear the employment, even modified as it has been by frequent changes of material for the last twenty-five years—only one instance, the Dr. says, he had been able to find that was 50 years of age. For a remedy for these evils, *see the Allotment System*,—yet, as respects the general health of the whole population, it is a known fact, that in this country, a century ago, the average mortality was one in thirty—it is now about one in sixty—that is, where one dies now, two died a century ago.

The peculiar manufactures of Birmingham, had, of late years, increased the magnitude of her vast, numerous, and most ingenious manufactures of iron, steel, brass, and hardware in an almost endless variety, not only for supplying ourselves and our foreign plantations, but almost all the rest of the world.* This industrious town, is reckoned to contain at least 50,000 inhabitants. The establishment of the Soho works, is an interesting circumstance in the history of manufactures in metals. About 1757, a small water-mill for rolling metal was established on

* The term *hardware*, includes every kind of goods manufactured from metals, comprising iron, brass, steel, and copper articles of all descriptions, of which the principal manufactures of Birmingham and Sheffield, although both the Netherlands and Germany fabricate articles in this line of late years, and very considerably improved and extended themselves, yet M'Culloch, in his *Commercial Dictionary*, states the total aggregate value, (being different from almost all other writers,) of iron and other hardware, in England and Scotland, at £17,500,000 per year, affording direct employment in the various departments of the trade for at least 360,000 persons. The United States are by far the principal market: the value exported in 1829, was £1,389,514, and they took no less than £669,871.

Boulton's extensive hardware works.

this spot, which was previously a barren uncultivated heath: a lease of the ground, for ninety-nine years, having been procured for that purpose. In 1762, Matthew Boulton, who was the son of a hardwareman, of Birmingham, purchased the lease and buildings, rebuilt the mill on a larger scale, and removed his manufactory of steel toys from Birmingham to this place. He expended many thousand pounds, which had been accumulated by his father, in the erection of workshops and dwellings, and collecting the water of a small stream into a pool, in order to make it available as a moving power for a variety of machines for manufacturing articles, for which Birmingham was already famous. The building consisted of four squares, for 1000 workmen. Manufacturers resided in Birmingham who excelled in a great variety of different departments of manufacture, as well as the fabrication of buttons, buckles, trinkets, iron, steel, gold, silver, and a variety of compositions, besides in many which had been long carried on in France. But the principal interest attached to Soho, arises from its connexion with the steam-engine, that "powerful moral lever in forwarding the great cause of civilization," which has received those grand improvements, and has been exerted in furthering the industry of the nation. As the original works extended rapidly, the horse-power machines had to be employed for a time, in aid of the water-wheel: subsequently, the steam-engine, on Saverie's principle, was used, to return the water to the reservoir. This applica-

tion of the steam-engine, appears to have led to the intimate connexion of Boulton with its improvements. In, or soon after 1769, Watt became connected with Boulton, and removed to Soho, where he perfected his inventions, and superintended their introduction into general use.

In noticing the difficulties conquered by Watt, occasioned by the low state of the mechanical arts: as regards the construction of machinery in the early part of his career, it appears, that at that time there were but one or two individuals who could bestow the requisite accuracy of workmanship upon the cylinders of air pumps of only two inches diameter; we may conceive what difficulties would arise, when cylinders of size, which were required for steam engines, had to be made, in which the same degree of precision was desirable, although the early engines did not require, by any means, so much accuracy of construction as those of Watt,—their cylinders being found difficult to make, and were, consequently, expensive, were commonly made of brass, owing to the facility with which that metal could be cast and bored. Another compound metal, the composition of which is unknown, was used instead of brass in many cases, as it was much easier to be melted, and, when properly managed, full as easy to bore. It was called spelter, and is said to have been, when cold, as brittle as glass, though a very slight degree of warmth made it pliable and easy to work. The brass cylinder of an engine, erected in Scotland in 1827, cost nearly £250; and the whole machine more than £1200, exclusive of the expence of putting the engine together, and the building in which it stood. Smeaton estimated, that a similar machine, with a larger cylinder, might be made for £756, including pipes of iron, instead of elm pump trees bound with hoops, which were used in the Scotch engine: indeed, in some of the early steam engines, the writer had himself witnessed the immense friction which was occasioned by the improper power applied; and this has shaken not only the machinery, but the whole building, with a strong tremulous motion, as if the whole fabric would fall. Cylinders of iron are mentioned by Aisaqûlier, as early as 1743; but it is doubtful whether they were used before the adoption of mineral fuel, rendering iron cheaper, as well as better in quality. At that time, the operation of boring and polishing cylinders and pump barrels, was performed in a similar manner to that of boring wooden pipes, the principle of which is, that the pipes or cylinders are placed in a kind of carriage, and are moved forward against the borer, which consisted of cutters fixed in a solid wheel that revolved without advancing; this method, though general in the new founderies, was not adopted in the Carron works, on account of defects in boring, by the irregularities of casting. In a

The locksmiths of Wolverhampton.

machine, invented about 1775, by J. Wilkinson, the proprietor of the iron works at Bersham, near Chester, this difficulty was overcome, by causing the borer to advance into the cylinder along an inflexible rod, which guided its action so completely, that the irregularities of the casting became quite immaterial, provided there was sufficient thickness of metal. This, and some other inventions, may be considered as forming an era in the manufacture of machinery generally, and especially of steam engines, as they rendered easy the construction of cylinders of five or six feet diameter, and piston rods, &c. of corresponding dimensions. Watt observed, in a letter to his friend Smeaton, that he could promise to bore a cylinder of seventy-two inches diameter, that should not deviate from absolute correctness in the worst part, *more than the thickness of a thin sixpence!* as all the parts of Watt's engines required an accuracy of workmanship then very rarely to be met with: their manufacture was carried on chiefly at Soho, where machinery was set up. In the mean while, Boulton wrote to Smeaton respecting it, as follows:—"We are systemizing the business of engine making, as we have done before in the button manufactory; we are training the workmen, and making tools and machines to form the different parts of Watt's engines, with more accuracy, and at a cheaper rate, than can possibly be done by the ordinary method of working. Our workshops and apparatus will be of sufficient extent to execute all the engines which are likely soon to be wanted in this country; and it will not be worth the expence for any other engineer to erect similar works, for they would be like building a mill to grind a bushel of corn."

An important branch of the iron manufactory are the locksmiths of Wolverhampton, who have been in repute for skill during the last two or three centuries. Dr. Plat notices, in 1686, the preeminence of the blacksmiths here in making locks for doors; "They make them," he says, "in suits,—six, eight, or more, in a suit, according as the chapman bespeaks them, whereof the keys shall neither of them open each other's lock, yet one master key, kept by distinct servants, though neither of them can come at each other's changes, the master can come at them all." Nor is this all that these cunning men can perform; they can construct locks, which will show how often they have been opened and shut, even to 300, 500, or to 1000 times; others were made with chimes, to play at any hour to which they may be set; and these locks they make either of iron or brass, and it is not reasonable to think they were ever exceeded, unless by Tubal-Cain, the inspired artificer in brass and iron. By the use of twelve tumblers in a lock of this description, the apparatus may be so varied, that, by simply changing their places, without any alteration of form or size, the same lock may be made to require 479,001,000 different keys, or that number of locks, precisely alike, yet so essentially different, that one key made for one, would not open any of the others. Ingenious as these and many other contrivances are, they were completely eclipsed, in point of security, by the celebrated lock, patented about the year 1784, by Joseph Bramah, the inventor of many other highly ingenious and valuable machines. The principle

The converting cast iron into bar iron.

adopted in this lock, appears, from a paper read in 1827, to the Royal Institution, to have been known to the ancient Egyptians at least four thousand years since; but it does not appear to have been known in England, or even in Europe, until re-invented, about 1774, by M. Bowan.

We are indebted to Cort for the invention, after many unsuccessful experiments, of converting *cast iron into bar iron*, by exposing it to the heat of a reverberating furnace, acted on by the flame of pit coal: his method, however, did not answer perfectly, until improved upon by another plan, called puddling, to be proceeded with by a kind of refinery with coke, to prepare the iron for becoming malleable. Amongst Cort's other improvements, he substituted the use of drawing-rollers, or cylinders, for the extension of bars under the hammer—an improvement of great importance, to facilitate the manufacture of wrought iron. Report says, though he secured his practice by a patent, he was unsuccessful, and ruin overtook him before he could turn to his own advantage, that scheme which was afterwards matured, and became profitable in the hands of others. The first individual who succeeded, and derived a princely fortune from this invention, was a resident of South Wales, who had the judgment to perceive, and the spirit to patronize, the ingenuity of a person who acted as his engineer, and carried towards perfection the art of *puddling*. This process was quickly introduced into every part of the country.

This invention, by superseding the importation of foreign iron, was generally adopted, and, at the same time, promised well; many individuals became impressed with the idea, not merely that iron was the most valuable of metals, but that its preparation was the direct way to wealth. The infatuation was too powerful to be withstood,—the business was considered too powerful to be neg-

The Shropshire manufactories.

lected, and many engaged in it with capitals varying from 10 to £100,000. Iron works multiplied rapidly—the quantity produced exceeded the consumption; competition reduced prices below the expence of the manufacture, and not a few adventurers had to tell a tale of disappointment and ruin. To give some little idea of the extent of some of these furnaces, Lord SHEFFIELD states, that one company, in Shropshire, consumed 500 tons of coal daily; the Carron works employed at least 1000 workmen, in which were consumed 136 tons of coal daily, and they had five blast furnaces, sixteen air furnaces, and three copula furnaces, and a steam engine, which consumed 16 tons of coal in 24 hours, raised 4½ tons of water at a stroke, and made seven strokes per minute. The population had risen in the parish, from 1764 or 1765, to upwards of 4000, in 1790. ST. FOND says of this foundry, "There is such a numerous series of places for making coke to supply such vast consumption, that the air is heated to a considerable distance, so many masses of burning coal on one side, and so many volumes of flame darting to a great height above the high furnaces on the other; and at the same time one hears the noise of weighty hammers, striking upon resounding anvils, mingled with the roaring of the bellows,—one even doubts whether he is at the foot of a volcano in actual eruption, or whether he has been transported, by some magical effect, to the brink of the cavern where Vulcan and Cyclops are occupied in preparing thunderbolts."

The East India Company generally purchase about 6000 tons, in form of cannon, mortars, shot, and shells, and the British government about 11,000 tons annually, besides 4000 tons by trading vessels not belonging to either of the above, making a total of 26,000 tons for weapons of destruction alone! A remarkable instance of the extent of another purchase of iron, more pacific, and of more general utility, is related by MACPHERSON, who says, that in 1788, an order was given to a celebrated English manufacturer, Mr. Wilkingson, for iron piping to the *extent of forty miles*, to be used for supplying Paris with water. The Society of Arts, in mentioning this order, states, that the steam-engines required for the water-works were also supplied from England, and design-

The Sheffield steel manufactories.

ates the whole "the largest and most useful apparatus modern times can boast of." The extending use of cast iron in engineering works, appear in the labour of Telford bridge, and another cast iron bridge over the Wear at Sunderland, which claims especial notice, the arch of which is a segment of a very large circle, of 236 feet span, and 94 feet above the level of the water, so that vessels of 300 tons burden can pass under it.

Steel was generally imported from Germany, until a person named Huntsman, of Attercliffe, near Sheffield, in or about the year 1770, invented, and introduced cast steel with complete success, and was for some time the only noted manufacturer of an article, which, bearing his name, is still held in high estimation; his success gave rise to competition—large works were established at Rotheram, for the refining of steel. This invention, though new in this country, appears to have been known to the ancients, for the celebrated *wootz*, or Indian steel, is a kind of cast steel; and from an obscure passage in Aristotle, he appears to allude to such a substance. The superior qualities of cast steel have led to its extensive substitute for bar or sheer steel, in the manufacture of cutting instruments, and various other articles, so that Sheffield, where this article is made, has not only become by far the largest laboratory and emporium in the world for cast steel; but, in consequence of its being the seat of the cutlery and edge tool trades, the facilities for experiment and adaptation on the spot, have enabled the Sheffield steel makers to surpass all others in perfection; for it is a remarkable fact, that this very town, which was formerly indebted to Syria for the steel used in its cutlery, now exports a material of its own manufacture to the Austrian forges, and other places on the continent of Europe. This article is extensively used in the *needle manufactory;* the workmen who point the needles are constantly exposed to excessive minute particles of steel, which fly off from the grindstones and mix, though imperceptibly to the eye as the finest dust of the air, and are inhaled with their breath; the effect, from day to day, produces a constitutional irritation, dependent on the tonic properties of the steel, which is sure to terminate in pulmonary consumption, insomuch, that persons employed in this kind of work scarcely ever attain the age of forty years. In vain it was attempted to purify the air before its entry into the lungs, by gauzes or linen guards, but the dust was too fine and penetrating to be obstructed by such expedients, until some ingenious individual invented masks of magnetic steel wire, which are worn by the workmen; by these, the air is not merely strained, but each obnoxious atom arrested and removed.

CHAP. XII.

MANUFACTURES CONTINUED.

Glass—Its discovery—Composition—Different sorts of glass—Plate, window, flint, and bottle glass—The progress of its manufacture—Ductility—Extensive manufactory in France—Its introduction into general use in England—The lanthorn—Its discovery—Clocks—Time-pieces—Water-clocks—Chronometers—Harrison's claim—His reward—Their use in determining longitude.

THE invention, or rather the discovery, of GLASS, is said to have been accidental: the account given of this occurrence, by PLINY, is, that a merchant vessel, laden with saltpetre, having been driven on shore on the coast of Palestine, near the river Belus, the crew placed the kettles, in which they had cooked their victuals, on some lumps of their cargo, which, being melted by the action of the fire, combined with the sand on the beach, and formed a kind of glass. Whether this account be true or not, it is certain, from specimens which have been discovered in Egyptian tombs, and other buildings of remote antiquity, that this useful article was known in very ancient times, but it was, in these days, more what we call enamel, being perfectly opaque, and varying much in colour. The art of rendering glass transparent, was not discovered until several centuries later. To whom we are indebted for this valuable discovery is uncertain; but we find it is recorded in history, that Nero paid a sum of money, equal to £50,000 sterling, for two small cups of transparent glass. At the beginning of

The composition of glass.

the Christian era, the art of glass-making appears to have made considerable progress, and at the end of the third century, we find a notice of its being used, in some cases, for the purpose of glazing windows. The invention advanced rapidly in Italy, and afterwards in France; but the first account we have of the use of window glass, in England, is in the year 674, when the abbot, Benedict Biscop, sent over for foreign artists to glaze the windows of the church and monastery of Wearmouth, in Durham. Yet, though thus early known, it was not employed for this purpose in private houses, or even in churches, in this country, until the end of the tenth century. Glass consists, essentially, of silex, the substance of which flint is formed, and some of the kinds of alkali, as pearlash, potash, kelp, &c. The use of alkali is to cause the flint to melt, when in the furnace. The best form in which flint is met with, for the purpose of making glass, is in the state of sea-sand, and those kinds best adapted to the purpose, in England, are procured from Lynn, in Norfolk, and from the Isle of Wight. The kinds of glass are of various qualities, the commonest being that of which wine bottles are made; window and plate glass, are both considerably harder in texture, and more brittle than that which is called flint glass, of which wine-glasses, decanters, and lamp-glasses, &c are made. When the materials have been submitted to the fire for a certain time, varying from 30 to 36 hours, and become perfectly liquid, the fire is damped, and the glass, in

Glass manufactory in France.

this fluid state, is suffered to cool to such an extent, that a small portion can be taken up on the end of an iron rod. When in this state, there is no substance in nature so ductile, or so easily moulded into any form that may be required.

In the beginning of the 14th century, the art of glass-making was introduced into France on a large scale, and its manufacture was looked upon in so favourable a light by the government, that none but gentlemen, and the sons of the nobility, were allowed to establish a glass-house, or even to assist in the manufacture. This feeling of gentility in the art of glass-making, was not extinct in France when the large French Encyclopœdia was published, at the end of the 17th century; for, in speaking of those employed in it, the word *gentilhomme* is invariably applied in place of *ouvrier* (workman), used on other occasions; even in England, some few years since, the workmen were commonly called "the gentlemen glass blowers." Formerly, every description of flat glass had been blown, but in 1688, a very great improvement was made by one Abraham Thevnart, who resorted to the plan of casting plates of glass for looking-glasses and other purposes. A large manufactory was established at St. Goben, in the department of the Aisne, in France, which is still deemed one of the most considerable in Europe. In England, this useful article seems to have been made on a very small scale, until the beginning of the 17th century, when the manufacture became more considerable. In 1670, workmen were brought from Venice, and many glass-houses were established. In 1771, the British plate glass company was chartered by an act of parliament, and an extensive factory was erected at Ravenshead, near St. Helen's, in Lancashire: the works cover about 20 acres of ground, and nearly three hundred persons are constantly employed. Before the war with France, in 1698, the best kinds of glass, even for windows, as has been already stated, were imported from France. The manufacture of crown glass was not even attempted in England, until after 1760. The duty levied upon this article, in 1695, continued for five years, and then was, by an act of parliament, made perpetual. However, in the next year, the legislature, remitted the duty one-half, as they found, by experience, says the act, that the said rates and duties upon glass, and glass ware, were so great as to discourage the manufacture, and, consequently, the revenue on this article; in the following year, the manufacturers were relieved from the vexatious interference of fiscal officers, on the ground that the duties did not produce much. Glass then remained free until 1746, when a duty was imposed on the material, and additional duties on the importation of foreign glass.

Although glass windows were certainly common in

some parts of the kingdom, particularly in churches, monasteries, and noblemen's houses, yet they were not commonly found in the dwellings of the middle classes, long after the introduction of a manufactory of flint glass, in 1557. It is also reported, that even great part of Windsor Castle was unglazed in the time of Elizabeth. The first establishment of a glass-house, that we read of, was at Newnham, in Gloucestershire: and in the same year, 1686, one was erected for manufacturing drinking-glasses, &c., at Crutched Friars, and the Savoy house, in the Strand, London. The destruction of wood, occasioned by the glass manufacture, as well as by that of iron, appears to have been the complaint in Elizabeth's reign, and in the reign of James. Sir Robert Morrell, having discovered a method of making glass with coal, a proclamation was issued, prohibiting the use of wood as fuel, in making glass. From this proclamation, which was made in 1616, and is referred to in another in 1635, by Charles 1., whereby it appears to have been then of considerable importance, though the British manufacturers were unable to compete with those on the continent, in quality,—large quantities of flint glasses, for drinking, being imported from Venice, Morano, &c. In 1670, through the exertions of the Duke of Buckingham, who brought over from Venice the best glass-grinders, glass-makers, and polishers, "which public spirited design has since so well succeeded,—that now we are enabled to send to that very city, and to almost every other part of the

Manufacture of plate-glass.

world, the very finest glass of all sorts that the earth can produce."

About three years after this, it appears, that the first plates for looking-glasses and coach windows, were made at Lambeth, under the auspices of the Duke of Buckingham; these were probably similar to our common sheet or window glass, as the art of casting plates of glass, so as to produce what is now known as plate glass, was first practiced about 1688, in France. The plate-glass, properly so called, was commenced in England about 1773, in which a joint stock company was incorporated by act of parliament, under the name of *The Governor and Company of British Cast Plate Glass Manufacture*. A capital of £40,000 was subscribed, and works were erected on a large scale at Ravenshead, near Prescot, in Lancashire, where the manufacture has been diligently and successfully carried on down to the present time. At an early period, the plates made by this company were said to rival, or even surpass, the most celebrated foreign manufacturers, in size and brilliancy. The purposes to which this beautiful material have been applied, are as numerous as they are useful; and it has added materially to the comforts and conveniencies of private life, and has, among many other invaluable benefits, assisted the astronomer in his researches, and the microscopic philosopher in the detection of the more minute operations of nature, amongst the lower classes of animals; and to it we are indebted for our chief discoveries in electricity.

It is, perhaps, not generally known, that we are indebted to Alfred the Great for the invention of that useful article—the *lanthorn*. Before the invention of clocks, Alfred caused six tapers to be made for his daily use; each taper contained twelve pennyweights of wax, was twelve inches long, and of proportionate size; the whole length was divided into twelve parts, or inches, of which, three would burn one hour, so that each taper would be consumed in four hours, and the six tapers, being lighted one after another, lasted for twenty-four hours; but the wind blowing through the windows and doors, and chinks in the walls of the chapel, or through the cloth of his tent, in which they were burning, wasted these tapers, and, consequently,

Alfred invents and uses the lanthorn.

they burnt with no regularity; he, therefore, designed a lanthorn, made of ox or cow horn, cut into thin plates, in which he inclosed the tapers, and thus protected them from the wind, and the period of their burning became a matter of comparative certainty. The first mode of measuring the lapse of time, was, undoubtedly, the observation of the sun's motion. The Babylonians appear to be the first who obtained greater accuracy, by the invention of the sun-dial. The dial of Ahaz, mentioned by ISAIAH, must have existed eight centuries before the Christian era; and it is a curious example of the little communication which existed in ancient times, between the nations of the world, that this instrument was unknown to the Greeks until about 640, B.C. One of the Grecian sun-dials is preserved in the British Museum. A few centuries later, the Egyptians, in order to distinguish the hours at night and in cloudy weather, invented the *cleysydra*, or water-clock,—probably a mere float, with a rod fixed upon it, like a mast, and placed in a vessel of water with a hole at the bottom; as the water ran out, the float descended, and figures marked on the rod, at proper intervals, showed the number of hours elapsed. The sand-glass, made like the modern hour-glass, was also used in ancient times, as appears from a *bas relief* representing the marriage of Peleus and Thétis. The period of the invention of *wheel clocks* is involved in uncertainty: some stating it to have been as early as the fourth, and others as late as the tenth century. The cause of this disagree-

The invention of clocks.

ment is, that the word *clock* has been used to designate the *cleysydra* and hour-glass; and some were modifications of these instruments—such, probably, was the clock sent by Paul I. to Pepin le Brif, in 760. The clock sent to Charlemagne, in 807, by Haroun al Raschid, the caliph of the east, struck the hours by the falling of twelve brass balls upon a bell; it had also, twelve horsemen, who came out, one at a time, at separate doors, which they opened and closed again. This clock must certainly have been furnished with some kind of wheel-work; but the moving power is said to have been the fall of water.

In the 12th century, clocks, moved by weights, appear to have been used in Italy; and early in the 14th century, one was put up in London, by Wallingford, a monk, who died in 1325, which was said to show the time with accuracy. In the year 1344, Giacomo Dondi, erected at Padua his celebrated clock, which, besides the hour of the day, showed the course of the sun in the ecliptic, and the places of the planets. The celebrity of this clock was the cause of greatly advancing the art; as almost every court in Europe was desirous of possessing a similar machine, and the skilful mechanics were, in consequence, induced to turn their attention to the manufacture. Its author was dignified with the surname of Horologius, which is still borne by his descendants, the chief of whom, the Marchese Dondi Orologia, was lately, and most likely still is, a resident of Padua. The adoption of the pendulum, by the celebrated

Pendulums invented and used by Huygens.

Huygens, in 1657, at once brought clock-making to perfection, until our countryman, Harrison, the carpenter's son, of Pontefract, in Yorkshire, in 1693, who followed his father's business for several years, early displayed a taste for mechanical pursuits, especially for the improvements of time-pieces. In 1714, an act of parliament was passed, offering rewards of 10,000, 15,000, and £20,000, respectively, for the discovery of the means of ascertaining the longitude within sixty, forty, and thirty miles of a degree. The preamble of this act is as follows:—"12th Anne, cap. 15.—"Whereas it is well known by all that are acquainted with the art of navigation, that nothing is so much wanted and desired at sea as the discovery of the longitude, for the safety and quickness of voyages, and preservation of ships and the lives of men." This offer, the terms of which indicate how desirable such an invention was, stimulated Harrison to great exertions. According to a paper, delivered to the commissioners of longitude, on the 16th January, 1741-2, he had made a pendulum-clock, that kept time so exactly with the heavens, as not to err above one second in a month for ten years together. The pendulum of this machine was rendered almost independent of the absorbing effect of changes of temperature, by the combination of metals that are differently affected by heat. Harrison made this clock in 1726, and about 1729, he began his experiments for the construction of a marine chronometer—a task of no small difficulty, it being necessary to provide against

irregularities arising from the motion of the ship, the effect of alterations of temperature on the machine itself, and on the oil with which it is lubricated, and a variety of other circumstances. About 1736, he had made a time-piece of such superior excellence, that he was allowed, for its trial, to proceed with it to Lisbon in a king's ship; and the result was so favourable to the commissioners, that they encouraged him to proceed with his experiments. This time-piece, after a voyage to Lisbon and back, corrected the reckoning of the ship, at the mouth of the channel, about a degree and a half. Harrison then made a second and a third, of a small size. The result of all these experiments appears, that as far as could be determined, without making a voyage at sea, the correctness of the machine was sufficiently regular and exact, for finding the longitude of a ship, within the nearest limits proposed by parliament, and, probably, nearer. The commissioners, by a grant of money, encouraged Harrison to proceed and complete his third chronometer; this grant was signed by the President of the Royal Society, the Astronomer Royal, and several other scientific men. Harrison, subsequently, made a fourth time-piece, and then, considering that he had attained sufficient accuracy to obtain the prize offered by the act of 1714, he requested to be allowed to test its accuracy. Accordingly, in 1761, the fourth chronometer was taken to Jamaica in a king's ship—Harrison's son accompanying it. On his arrival at Port Royal, it was found to have

Harrison receives the parliamentary grant.

varied only five one-tenth seconds; and, on his return to Portsmouth the following year, in the *Merlyn*, it was only *one minute, fifty-one and half seconds, too fast*—being sufficiently accurate to determine the longitude within eighteen miles. Having accomplished so much more than was required by the terms on which the highest reward was offered, Harrison claimed it; and, although his case was sufficiently clear, he had great difficulty to obtain it, receiving, for many years, only part. In the course of three years, after repeated trials, during which his son went twice to the West Indies, he was apportioned only £10,000, as a moiety, to be paid when he should have fully divulged his invention, and assigned his four chronometers, (one of which was styled a watch) to the public use; and it was not until after repeated delays, he received the other £10,000, in 1767. Harrison died in 1776, in his 83rd year. Many schemes had been proposed, before his invention, to accomplish the same object, but none proved successful: this, and others to which it gave rise, have rendered the determination of the longitude as certain, and as practicable, as the determination of the latitude. The benefits conferred upon navigation, by its certainty, are incalculable, and can only be conceived by comparison with the uncertainty which previously prevailed, and with the accidents arising therefrom. The circumstance of government's offering so large a reward as £10,000 for an invention that should enable the navigator to determine the longitude within sixty miles, is a sufficient

Arnold and Dent's time-keepers.

proof of the great necessity of an improvement in the methods which were practiced by navigators a century ago. Harrison, in the complaint of his ill usage, states, "It must be owned, that my case is very hard, but I hope I am the first, and for my country's sake, shall be the last, that suffers from the non-fulfillment of an English act of parliament." The original time-keepers of Harrison were deposited, by authority, at the Royal Observatory at Greenwich. They were, a few years since, found to be in a very dilapidated state, from neglect and exposure to the damp; and Arnold and Dent, by request, obtained permission to repair them at their own expence. Respecting the first of these machines, which is a very curious piece of mechanism, Dent remarks, that "this respected piece of antiquity was left to perish in a store-room, at the Royal Observatory; and from exposure to the atmosphere, had become so brittle, that in many parts it would not allow of its being taken to pieces; so admirable was the workmanship, that with the exception of the escapement wheel, all the wheels and their axes were of wood, being simply flat discs with wooden teeth; friction was so perfectly guarded against, that on the removal of part of the escapement, the train of wheels commenced running with velocity, though they had not revolved, in all probability, for a century before." Our manufacture of watches and clocks, is now so extensive, that we are great exporters, both to Turkey the East Indies, and even to Germany.

The high reputation of British clocks and watches,

Its manufactory in England.

is alluded to by BRISSOT, a Frenchman; and to shew the importance of this branch of labour, we observe, that although the material is small, the value of watches and chronometers made in London, exclusive of clocks, was upwards of £1,000,000 a year; "nor," adds MACPHERSON, "can that sum be thought too great, when it is recollected, that the watchmakers of London make watches, not only for all the British dominions, but also for all the civilized world."

Watches of English manufacture, were in great repute in France, in the early part of the last century; and Law, the notorious projector, is said to have established a number of English watchmakers at Versailles. By an act passed in 1698, the exportation of parts of watches, that is, cases and dials, were prohibited; the other parts were made abroad, and the completed article stamped with the name of a London watchmaker. These watches, being of inferior quality and workmanship, tended to bring English watches into disrepute. It appears, the watches manufactured in Switzerland are the best in repute on the continent, next to the English; there, the spirit of adventure is, perhaps, as enterprizing as in this country. A few years ago, a watchmaker, a native of the Jura mountains, near Neufchatel, is reported to have found his way to China, where he amassed a handsome property by making and importing watches; and he returned home, accompanied by a young Chinese, whom he caused to be instructed in the trade, and who had sailed for Canton only a few weeks before Dr. BOWRING's visit to Switzerland, in 1836. Women and children are the principal operatives in watch-making, in Switzerland: the men finishing the machine, and preparing it for the market. Since Harrison's invention of time-keepers, various other improvements have been introduced, particularly in the nicety of the escapements: these are frequently denominated lever-watches. This is a branch of manufacture in which females might be very rationally and profitably employed; and might, therefore, be the means of their procuring for themselves a comfortable subsistence, and of rescuing them, as well as from other evils, idleness and its attendant—pauperism.

CHAP. XIII.

MANUFACTURES CONTINUED.

Pewter—Britannia metal—Lead—Shot—Its manufacture—Tar—Coke—Coining—Its invention—Manufacture of paper—First manufacture of writing-paper—Tate, the first maker in England—Papyrus used by the Egyptians—Quantity made in various periods—Improvements in paper-making machinery.

Pewter being a mixture of tin and lead, received some check in its manufacture and general use, since the improvements in the domestic utensils of earthenware, just as plates and dishes of pewter superseded the use of wooden platters. A superior alloy of somewhat similar character, called Britannia metal, or German silver, is now very extensively applied in the fabrication of almost every kind of article produced by silversmiths, for table furniture; an application to which, strong inducements were offered, by the extreme facility with which it may be converted into any required form, by casting, rolling, or stamping with suitable implements,—its moderate price, and its near resemblance to silver in appearance. The principal manufactory for this metal was commenced on a large scale, at Sheffield, about the year 1770. *Lead* appears to have been known, and worked, for a great number of years, and both the mining* and smelting

* Near the town of Holywell, in Flintshire, in Wales, there is a lead mine entered by a canal tunnel, 1300 yards long; the veins are rich, and the works give employment to about sixty workmen.

were very negligently managed, although the works were carried on with great secrecy, until the manufacture of lead shot was greatly improved by the process patented in 1782, by a plumber of Bristol, named Watt, who mixed a quantity of arsenic with lead, in order to make it more solid, and more certain to form spherical particles when poured through a cullender, or perforated plate; and he also introduced the practice of dropping the shot, as it is formed, from the top of a high tower, so as to insure the setting of the metal before it reached the water, into which the newly made shot fell. The idea of making shot by thus pouring melted lead from a great elevation, is said to have originated in a dream: and the experiment was first tried at the tower of the church of St. Mary Radcliffe, at Bristol. Watt secured his patent, and then sold it, as it is stated, for £10,000, to parties possessing sufficient capital to enable them to bring it into profitable operation. The process has long since become public property, and the lofty, slender towers, erected in several towns for the manufacture of shot, form by no means the least remarkable structures so observable in the island.

Among the various devices of the human character, a striking speculative invention occurred with Watt, who proposed, with the sum of money which he received for his patent, to build a crescent at Clifton; but as the situation chosen was a solid rock, the whole sum was expended in making excavations and in raising immense walls for foundations, which long bore the name of "Watt's Folly," and upon which walls Trafalgar Place was afterwards erected.

The failure of the supply of *tar* from America, occasioned by the war, put the proprietors of a *lamp-*

Pitch, tar, and coke, from lamp-black.

black manufactory, at Bristol, upon making experiments on the oil extracted from pit coal in their works; and they found, that by degrees of boiling, it could be brought to the consistence of tar, and also of *pitch*. The tar, besides being cheaper, proved more efficacious in preserving the bottoms of ships from the worm, than vegetable tar; moreover, the coal, after the tar is extracted, becomes excellent coke, whereby a great saving is made in many manufactories for which coal used to be charred on purpose; in which operation, the valuable tar was totally lost in smoke, as it is, in a great measure, in our common fires. Improvements were introduced in this manufacture by the Earl of Dundonald, who obtained a patent in 1781. As some difficulties impeded the bringing his process into operation, in the manner originally proposed, a new association was formed for the purpose, and parliament, in consideration of the national importance of the object, and the superiority of its process over that introduced in 1779, granted the Earl an exclusive privilege for carrying his plans into effect for twenty years. The same ingenious nobleman introduced valuable improvements in purifying salt, for curing meat, fish, &c.

The use of *coke*, in smelting iron, would probably have been impracticable to any considerable extent, unless under favourable circumstances, if the assistance of the steam-engine had not been called in to act on the kindled fuel. The possibility of adapting the new mechanical force to the production and main-

tenance of a continuous and sufficiently forcible stream of air, was first perceived by Isaac Wilkingson, when Boulton and Watt commenced their manufactory of steam-engines. John Wilkingson, the father, was the only person competent to execute the castings; he was possessed of quick discernment, and great talent, and was by them elevated from an originally low condition. In the account of his early life, he says,—

"I worked at a forge in the north; my masters gave me 12*s.* per week—I was content; they raised my wages to 14*s.*—I did not ask for it; they went on to 16*s.* and 18*s.*—I did not ask for the advances; and, after a very short time, they gave me a guinea per week. I said to myself, if I am worth a guinea a week to you, I am worth more to myself! and left them." He then went to Boulton and Watt, who hired him to work upon their steam engine. He then says, he grew tired of his leathern bellows, and determined to make iron ones. "Every body laughed at me; but I did it, and then they cried, *who could have thought it.*" To the same gentlemen, he said, in 1799, "you will live to see wagons drawn by steam,—I would have made such a wagon for myself, if I had time;"* and he was on the verge of the important discovery for distilling coals, in order to extract the tar, as Lord Dundonald did some years afterwards, without being aware that the gas evolved might be detained and made highly useful. John Wilkingson died in 1808, aged 80 years.

The art of *coining*, although almost universally practiced amongst civilized nations, remained in a very singularly imperfect state, until the ingenuity of the proprietors of the Soho works was directed to its improvements; but it was raised by Boulton to a state of perfection, which left very little for subsequent mechanics to accomplish. The first coining-mill im-

* Boswell says "I shall never forget Mr. Boulton's expression to me when I visited his great works at Soho; 'I sell here, Sir, what all the world desires to have—*power*.' He had then 700 people at work. I contemplated him as an iron chieftain, and he seemed to be the father to his tribe."

pelled by the power of steam, was erected at Soho, in 1788, when a medal, about the size of a guinea, was struck as a specimen. The extreme accuracy, and boundless power, attainable by the use of the steam-engine, not only rendered it easy to strike the coins with greater precision than before, but also to reduce the cost of operation. Boulton and Watt were employed by government to coin the pence, halfpence, and farthings, in 1797, some of which are now in circulation. Before this contract, silver money had been coined at Soho, for Sierra Leone and the African company; and copper money, for the East India Company and the Bermudas; and, in consequence of an application from the Emperor of Russia, for the machinery of a mint, Boulton was authorized, by an act of parliament, to export the apparatus necessary for such an establishment, and to send workmen with it to Russia. It appears, that the coining machinery in operation at the close of the seventeenth century, had eight stamping presses, each of which was capable of striking from 70 to 84 pieces, of the size of a guinea, per minute, so that from 30 to 40,000 coins could be produced in an hour. In addition to the actual coining apparatus, the machinery was made to perform every operation pertaining to it, such as the rolling of the metal into sheets of the required thickness, fine rollings to render the surface smooth, cutting out blanks, or circular pieces of metal of the size required for coins, and shaking them in bags to rub off the rough edges; nor has the utility of such apparatus

The manufacture of paper.

been confined to the coining of money,—similar machinery having been applied to numberless articles of metal, for purposes of utility and ornament: and this has been one of the most important improvements to which the country owes its preeminence.

The advantages which society derived in the extreme accuracy which the apparatus produced, consist in the almost insuperable difficulties placed in the way of the forger, which tended to diminish the temptation to crime; and this consideration led Dr. DARWIN to say, that "if a civil crown was given in Rome for preserving the life of one citizen, Mr. Boulton should be covered with garlands of oak." Briot, in France, in attempting to introduce it in lieu of the old process of striking the die with a hammer, in the 17th century, had been compelled to take refuge in England, where he improved upon the inventions already made; and BRESSOT states, that another Frenchman, named Warin, and M. Droz, with more recent improvements, met with kind reception, whose talents, he states, if encouraged by their government, would equal, if not be superior, to the most eminent English watchmakers and mechanics.

The manufactory of PAPER, an article so much in general use in our days, appears to have been introduced, as most of our other manufactures were, from foreign countries, by the refugees from the tyrannical persecutions of the Protestants on the continent. France appears to have been the first country in Europe in which paper was manufactured; and there it was particularly confined to the seven following provinces, viz:—Champagne, Normandy, Brittany, Angoumois, Pingord, Lemoune, and Auvergne; "The three last provinces are full of large forests of chesnut trees, and in them abound so much of that kind of fruit, that the common people partake of that peculiar food all the year round, and make use of no other drink but water: so that they can afford to sell their labour very cheaply, and, consequently, work

for exceedingly low wages, excepting a few of the managers, or foremen, who earn a small salary by the week." "This is so true," says De Foe, "that considerable parcels of paper were imported lately into England from thence, although the duties paid here exceed one hundred per cent. on the first cost." To the objection made—that a Frenchman, living on an onion and a draught of water, a bunch of grapes, and a piece of bread, never could do such a day's work, and that so well, as an Englishman, who had his beef and pudding, our author replies, "I have had the curiosity to inquire into the *paper manufacture*, and I find, that five persons are employed in every vat, and that as many hands are necessary in England, and that more cannot be employed in France. I am taught, too, by our own manufactures, that they do not dispatch here above *eight* reams of paper in a day, at a single vat, and that in France they dispatch *nine;* and yet, I believe, there is no man so hardy as to affirm, that either ours, or, indeed, any paper in the world, exceeds that manufactured in France." He accounts for this, on the principle, that there is a sleight of hand in almost every manufacture, which is much more effective than mere strength. Before the revolution, there was hardly any other paper made in England than brown; but during the war, the duties laid on foreign paper gave such an encouragement to the paper-makers, that most of them began to make *white paper*, fit for writing and printing: and they have brought it, by degrees, to so great

a perfection, both for quantity and goodness, that they make now nearly the whole of what is consumed in Great Britain; and, since the duties have been lessened on the home manufacture, there is no doubt but this manufacture will so improve, that we shall be enabled to export to those very countries, especially as machinery performs the operations of manual labour.

In the reign of William III., there is no mention of importing rags from abroad; and even in our own country, it is stated, that the main ingredients, (rags)* were formerly cast away and thrown to the dunghill, which are now gathered with great care, by poor people, who get an honest livelihood by them, and who would otherwise be compelled to beg their bread. In this reign, 400,000 reams of paper, per annum, were made by the 120 vats, within sixty miles of the metropolis. The first paper-maker in England, is supposed to have been John Tate, who had a mill at Hereford,—his device for paper-marks, was a star with five points within a double circle. The first book printed on paper manufactured in England, was a Latin treatise, entitled *Bartholomus de Proprietatibus Rerum*: the paper for which, was manufactured by John Tate the younger, and had the mark of a wheel. The names that many of the sorts are distinguished by at the present day, are merely the devices which former makers used to adopt on their respective sorts: thus, *post* paper is derived from the devise of a postman with his horn, in the water-mark of the sheet; *pot* paper is so called, from the water-mark of a pot in the sheet; and *foolscap*, as its name denotes, was the cap and bells in the water-mark. The most ancient mode of writing was on cylinders, on bricks, and on tables of stone; afterwards, on various materials, on ivory and on similar articles. In the Book of Job, mention is made of the custom of writing on stone and sheets of lead. The Gauls, at the time of Cæsar, wrote on tables. These early inventions led to the discovery of tables of wood; and as cedar is the least corruptible, they chose this wood for the more important writing: hence the celebrated expression,—"that it is worthy to be written on cedar." The Greeks and Tuscans were the first who used wax to write on; they formed letters with an iron bodkin. The Romans substituted bone; they also employed reeds, cut in the form of pens. Naude observes, "when he was in Italy, in 1642, he saw some of the wooden tablets, called

* Of the linen rags, of which paper is made, about three-fifths of that now used in England is imported from abroad, chiefly from Italy, Germany, Hungary, and Sicily,—the importation of rags being prohibited in France, Holland, Belgium, Spain, and Portugal.

Progress of paper making.

pugillares, and others composed of the barks of trees, which the ancients used in lieu of paper, which, he observed, was not then in use—for paper is composed of linen, and linen was not then known to be commonly used. Hemp," he adds, "was known, but not used." RABELAIS, who wrote about 1540, mentioned it as *a new herb* which had been in use only about a century; and, in fact, in the reign of Charles VII., 1470, linen made of hemp was so scarce, that it is said, none but the queen was in possession of two shifts.† In progress of time, the art of writing consisted in painting with different kinds of ink. The thin inner bark of certain trees and plants, was next used, and even the skin of animals. The first place, it is said, where they began to prepare these skins, was Pergamos, in Asia. The Egyptians employed the bark of a plant or reed, called *papyrus*. It is this plant which has given the name to our paper, although it is made of linen rags. The Chinese make their paper of silk. WORRO says, that palm leaves or mallow leaves, were first used for writing on—whence the word began and continued to signify, the leaf of a book. There is a small fragment of writing on bark, near one thousand years old, in the Cottonean library. The art of making paper of cotton, was discovered in the eleventh century: the invention of making it of linen rags could not be much later.

The use of linen, as a substance to write on, is allowed to have been long practiced, prior to the invention of *papyrus:* but the writing was rather painted than written, and the inks of antiquity were similar to paint, resembling the ink still used in the east called Indian ink. That such writings were known to the Egyptians, we are aware of from the written or painted bandages which are found in the temple of Monata, on the mummies: it is also a remarkable fact, that the pictorial epistles of the Mexicans were painted on a cotton tissue. The use of linen was certainly known to the Jews, in the time of MOSES; but at that time, and many centuries later, the linen was

† There is no doubt but linen was early known to the Egyptians, in the time of MOSES, because flax was one of the articles destroyed by the plague; and the Jews also had known its value, it being mentioned in the Psalms as the raiment of princes, and in Isaiah and the Revelations, as the clothing of the angels.

covered with paint, or some kind of size, on which the writing was painted; and more generally of a kind of parchment made of the skins of animals. The writing tables used in the time of HOMER, were, most probably, similar to the one used by ZACHARIUS, when he wrote the name of his son, John the Baptist; and they were not wholly disused in Europe until the fourteenth century, and are still employed in north Africa, western Asia, and Greece. The leaves of these tablet books, whether of wood, metal, or ivory, were connected together by rings on the back, through which a rod was passed, that served as a handle to carry them by. PLINY mentions, that leaden sheets, or plates, were used for important public documents. Dr. BUCHANNAN states, that the Cabul Jews have the law written on a roll of leather, made of goats' skins, not on vellum. The Jews, both ancient and modern, write their scriptures on parchment, of which the rolls of the law used in their synagogues are still composed. It is said, the moderns would have derived no advantage in the art of printing, if the invention of making paper out of old and tattered linen garments had not been discovered. At what time paper was first made, is a matter of dispute; but it appears to have been employed amongst us about 500 years ago; and for a long period after its invention, this country obtained its supply from abroad. As the war with France occasioned very high duties to be laid on foreign productions, some French protestant refugees settled in England, and introduced the manu-

Value of the paper manufacture.

facture of white writing-paper, as we have before noted. This manufacture soon arrived at great perfection, insomuch that 300,000 reams of paper were made in England in 1721. At the present day, it is computed, that the value of the paper made in the United Kingdom is about £1,300,000. There are about 700 paper mills in England, and 80 in Scotland, which employ about 27,000 persons in the direct manufacture, besides those employed in erecting the mill-work and other machinery. In this, as in almost every case, the early specimens were produced by a greater share of manual labour than is employed at present. The inventions of modern times, have enabled us to substitute machinery in almost every branch of manufacture, whereby *we are enabled to do more work, and cheaper, than even the chesnut-eaters of France;* and also, society in general is supplied with better productions, and in larger quantities, at a cheaper rate than it could have been by any foreign productions, or, even in earlier days, when labour was of much less value.

The great advantages of machine-made paper, is the large size which can be given to the sheets. A sheet of paper, for a double number of *The Times* newspaper, if made by hand, would require a mould of such unwieldy dimensions, that it would be, in every respect difficult, if not impossible, to work. Paper hangings have been greatly reduced in price, by being made in one piece, twelve yards long, whereas small sheets had formerly to be patched together under the old system: the old plans are the modes still adopted in some parts of the continent. The rags are still reduced to a pulp, in the original way of stamping, or beating: they have mortars cut in solid oak, two or three feet in diameter, large hammers, with teeth to cut the rags in small pieces; this rude method is nearly exploded in this country. M. Dickenson's improved arrangement of a cylinder covered with wire-cloth, is made to revolve over, and just in contact with, the prepared pulp, whereby the largest sheets of paper can be made. In

Different modes of making paper.

China, paper is made of the rind or inner bark of the mulberry, the elm, the bamboo, and the cotton and other trees. Paper has been made of *asbestos*, a very remarkable mineral, which may be exposed to a great heat and intense flame, without being burnt. It is a greenish grey fibrous stone, found in large quantities in Corsica. Professor Bruckman, of Brunswick, wrote a treatise on the manufacture of paper from *asbestos*, and printed four copies of the work on paper of that kind. However, by the powerful help of machinery, paper can now be made of almost every vegetable substance, particularly annual vegetables, as well as the barks and rinds of trees, cheaper, and more perfect, than any process requiring manual labour, however cheap, either in France, India, or China. The materials which were used for writing on in the early ages, and, indeed down to the invention of paper, were palm leaves, the inner bark of the *papyrus*, waxed tablets traced with a style, skins, lead, cloth, silk, &c. The ancients were not accustomed, at first, to arrange their leaves into the form of a square book, but when they had more to write than would fill one skin or leaf, they sewed several together, and wound them on a centre-stick. Many specimens of this kind were found in the ruins of Herculeum; they were burnt to a cinder, and looked much like petrified wood: some of them were capable of being separated sufficiently to examine their texture—and were found to consist of small sheets or pieces, about the size of the hand, and pasted or glued together, edge to edge, so as to form one long sheet.

By the late invention of Donkin and Co., the engineers, for which they had a patent, it is shown that the expense of making paper by hand is 16s. per cwt, whereas by their machine it is only 3s. 9d., so that upon 430,000 cwts., the quantity annually made in England, as founded upon the fact that one vat can make 480 cwt. of paper, and that there were 900 vats in the kingdom, the annual saving by this machine would be £345,600. In their second statement laid before the public in 1807, the patentees observe that their recently improved machine, from its great simplicity, may be erected at a considerably reduced expense; and instead of five men, as formerly, employed upon one machine, three are now fully sufficient. In 1813, the machine was capable of doing the work of six vats in twelve hours; it is now capable of doing double that quantity at one fourth the expense. After enumerating the process, he concludes with the observation, that the utility of their machine cannot be placed in a stronger point of view than the fact of there being 280 of them at work now in the kingdom; making collectively 1600 miles of paper of from four to five feet broad every day! That they have lowered the price of paper 50 per cent, and that they have increased the revenue directly and indirectly by a sum of £400,000 per annum.

CHAP. XIV.

MANUFACTURES CONTINUED.

Straw platting—Its principal locality—Dunstable plat—Bleaching—Tuscan plat—Jewellery—Its extensive use—Its value—The linen manufacture—Quantity exported—Machinery—Lace manufacture—Bobbin-net machine—Stocking frame.

THE ingenious manufacture of STRAW PLATTING, at the present time, employs upwards of 200,000 females. The precise period when the Dunstable bonnets made of straw plat, that is, of entire wheat straws, platted in long narrow slips, and afterwards sewn together, was invented, is unknown, though it may, probably, be a century and a half since. GAY, in his *Shepherd's Week*, said to have been written about 1720, in giving an account of the valuables bequeathed by a dying shepherdess, says,—

"My new straw hat, so trimly lined with green."

The weight and clumsy appearance of these bonnets, which confined the work generally to the small straws, probably first suggested the idea of dividing the straw: the first attempts to divide which, were by means of knives,—but this was a work that occupied much time. About thirty years ago, a mode was introduced by dividing the entire straw into equal parts, by means of little instruments called "machines," and then platting the divided parts. The inventor was rewarded by realizing a fortune of £20,000; and from

that time may be dated the use of the plat made from divided straws. The straw-platting districts are Bedfordshire, Buckinghamshire, Hertfordshire, and Essex. In many other counties, it is partially followed—the material generally used being ripe wheaten straw: but the straws of rye and other grains have been used, and, within the last ten years, large quantities of Italian straw, said to be both of corn and grass, have been imported and worked up into what are called Tuscan plat. Experiments on the different kinds of straws, and on the precise times when they should be cut, whether before or after the corn or grass is ripe, might lead to some discoveries which would add to the profit of the manufacturers, as well as to the durability and beauty of the bonnets. Straw-platting is of importance to farmers in these times, in an agricultural point of view, from the increased value of the straw—two-pence per pound being given for it in the rough, that is, without the heads of corn, in the straw-platting districts; and, therefore, it appears an article claiming the particular attention of cottage allotment occupiers.* It is said, that in Russia and Poland, the cultivation of hemp and flax, as well as its preparation, is for the most part performed by cottagers on small pieces of land in their occupation; and we have no doubt, if our cottagers would cultivate their small allotments for the growth of straw,

* This manufacture is at once healthful and domestic, particularly as it accustoms female children in our agricultural districts to habits of valuable industry, without the interposition of that hurtful degree of bodily labour.

The manufacture of straw plat.

their children might be more profitably employed in its manufacture, than in the cultivation of any article, except, perhaps, potatoes. The bleaching is a delicate process, although it is only the superior sorts that undergo this operation: the plat is then sewed by bonnet sewers, who make and form the bonnets and hats, which are then blocked, (an operation very laborious, and giving rise to diseases in the chest, very often ending fatally,—cannot this be remedied by a machine?) the bonnets then are pressed, and after being covered, lined, and ticketed, are ready for sale. The best bonnet market is at St. Albans; but there are others at Luton, Dunstable, and Braintree. These markets are held only in the morning, from about eight to ten o'clock. The manufacture of straw plat and straw bonnets, in Italy, is a considerable employment; in the duchy of Tuscany, containing a population of 1,200,000, and in an area of 8,500 square miles, the platting is chiefly carried on in the neighbourhood of Florence, Pisa, and the district of Sienna, and in the upper part of the vale of the Arno, where the best plats are made for straw hats. In *Addison's Travels*, he compares the beautiful and green mountains of the papal dominions with the wild and naked rocks and hills of the Siennese, and he thus emphatically expresses himself—"That the grand duke had the bones of Italy, and yet on these hills grow the straw of the Leghorn bonnets, which straw is grown in districts mountainous and barren." It is here produced from a kind of wheat.

said to be like Cape wheat, of which the grain is very small. The straw, though slender, has much toughness, the upper part of the stalk being perfectly hollow. Several mercantile houses in Florence and Leghorn buy their hats on the spot where they are worked; one of these houses annually exports to the amount of 400,000 florins (£3,500). About the year 1822 an attempt was made to manufacture bonnets of Tuscan straw in England; a manufacturer imported a considerable quantity of prepared straw from Leghorn, with this view, but not succeeding to his wish, placed the material in the hands of M. PARRY, who wisely began by acquiring the art of platting according to the Leghorn method; he then taught it to other persons with such success, that he had about seventy women constantly employed: for his spirited and successful exertions, the society of arts, in London, in 1822, conferred on him the large silver medal, on condition of his disclosing to the society the particulars of his mode of platting, according to the Italian method.

The JEWELLERY, GOLD, and SILVER-PLATE manufactory, and in connection, the GOLD and SILVER-LEAF manufacture, appears to be performed solely by manual labour, an ounce of gold being capable of being beaten, between sheets of vellum, so as to cover an extent of 24,000 square inches. The extraordinary malleable properties of gold appear to have been known from the remotest antiquity; for, among the remains of Egyptian art which are handed down to

the present day, many specimens of articles covered with gold-leaf are found. One reason that may be assigned for the general use of this metal is, its power of resisting the action of the atmosphere, as well as of acids. The jewellery manufactured in England is, by many, supposed to be inferior to that manufactured in France; but the quantity annually made here exceeds the quantity manufactured there very considerably, although in the making of several light articles, we are certainly surpassed by that nation. The annual value of manufactured jewellery was calculated in 1811, at £2,000,000, and the gold and silver plate at £500,000. The consumption of plated articles has increased considerably since that time, and has kept pace with the progress of population, and with the luxury, comfort, and riches of the country, which may be readily perceived by a single glance into society. That the manufacture of jewellery has increased may also be seen by the mere inspection of the exports of plate, which, after deducting the value of the raw material, cannot be estimated under £3,400,000: the greater part of which is paid in wages; working jewellers earning higher wages than any other mechanics.

The LINEN is an important manufactory, though not so considerable as formerly, since the rise of the cotton trade. The efforts that have been made to foster the linen manufacture in Scotland and Ireland, are an instance of the extraordinary notions which were formerly entertained upon the plainest matters

of public economy. In 1698, when Parliament addressed William III., and represented that the progress of the WOOLLEN manufacture in Ireland was such as to prejudice that of this country, and that it would be for the public advantage if the former were discouraged, and the linen established in its stead, the king replied "I shall do all that in me lies to discourage the woollen manufacture in Ireland, and encourage the linen manufacture, and promote the trade of England." Fortunately, these erroneous principles are abandoned, and this manufacture has become very productive and valuable in both parts of the empire. Its amount in 1811 was estimated at £10,000,000, the raw material being deducted; and in 1830 no less than 57,698,372 yards of woollen were exported, principally to the United States, the West Indies, and Spain; and, if to this number we add the quantity used by our own population, we may form a tolerable idea of the value of this branch of industry to those employed, such as flax dressers, spinners, bleachers, weavers, calenders, and others connected with it, whose number is estimated at 311,000. The introduction of ingenious machinery, in almost every branch of the cotton manufactory, naturally led to similar experiments for the purpose of obtaining like advantages in the production of other textile fabrics. The mechanical difficulties attending the spinning of flax by machinery were not, however, successfully met by the contrivances invented. In noticing the perfection of the weaving

process, to insure a regular minute fabric, a small kind of microscope was used for examining every piece of cloth; the wholesale dealers, as well as the manufacturers, made use of this instrument, which they seem to have desired to keep secret.

Saint FOND, in his travels, notices an extraordinary loom for weaving very large bed-sheets in one piece; and of table-linen, MACPHERSON calculates 17,275,075 yards were made and stamped in Scotland in 1785, and 24,500,000 yards in 1800. This is exclusive of that used in private families for domestic purposes, which together amount to several millions of yards annually. Not many years before, Lord SUFFIELD published his work on Irish manufactures, linen yarn was sent from the British dominions to be woven in Holland, and it was common, he states, to send the cloth to be bleached there; at that time the higher classes wore Dutch holland for shirts; though this is nearly at an end, yet the value of foreign linens, exclusive of Irish, imported into England, exceeds that of any other foreign manufacture. An important manufactory of cambric being established at Winchelsea, in Sussex, in 1763, it appears that the workmen employed in the first instance were chiefly French, but that English children were taken as apprentices. Great difficulties were experienced in procuring good hands, and still more in raising flax of sufficiently fine quality. Before the French cambrics were prohibited by act of parliament, the quantity of them consumed in England was almost incredible. "It is therefore to be hoped that our ladies will not be less fond of this Winchelsea linen," says the *Annual Register*, "merely because it happens to be manufactured in England, and equals the French cambrics in quality." MACPHERSON states, that three hundred pieces were sold at Garraway's coffee-house, by public auction, on Jan. 7, 1765, at an average of 13s. 6d. per yard, under an idea of their being imported from France, which were actually manufactured at Winchelsea.

YOUNG mentions that a considerable LACE manufactory at Bedford employed five hundred women and girls; the lace of which was of various sorts, up to the price of 25s. per yard; the women earned from 8d. to 12d. per day. Thread and silk lace, being so dear, and always worked by hand, the use of which was always confined to the wealthy, until by mere accident an invention called bobbin-net lace brought

The invention of the stocking frame.

the value within the compass of a larger class of the community. The invention of the stocking-frame dates from the close of the sixteenth century, about one hundred and fifty years after the frame was invented, and it was discovered that, by applying it to another machine as an appendage, which was called a tickler machine, the stocking loops could be removed in certain and various directions, so that the work assumed somewhat the appearance of lace. The net thus produced was, however, deficient in this essential point—that when unstiffened, it no longer retained the superior appearance. Notwithstanding this defect, upwards of 20,000 persons were at one time employed in making this net, and in ornamenting it with embroidery. This partial success appears to have acted as a stimulus, for in 1770 many attempts were made to contrive machinery that should more closely imitate the lace made by hand, by twisting and traversing the thread around each other; a machine was at this time brought from Switzerland, and various attempts were made to improve it so as to produce a sort of plat; although some of these contrivances of revolving wheels, and hundreds of other plans, produced a kind of net, yet the slowness of the operation, and the still greater want of accuracy in the working, prevented the adoption of any one of these inventions. An accident again proved a powerful auxiliary: a workman, of Nottingham, employed in making machinery for producing fishing nets, seized upon a hint furnished by a child at play,

and discovered by that means a mode of forming the bobbin and carriage now used in the bobbin-net machine. The invention was first applied to the production of fishing-nets, and many abortive attempts were made before the principle thus discovered could be applied to the manufacture of bobbin lace, and it was not till 1809 that the first successful machine for this purpose was perfected. It generally happens that machines, when newly contrived, have been complex in their arrangement, and that their improvements have been in the simplification of their principles.

This first machine was extremely complicated, and for this reason, slow in its operation. It had twenty-four motions in order to twist the mesh, and four other motions were required to secure the twist from unravelling. The right was secured by patent, and before the expiration of the term, they had so far simplified its motions, that thirteen instead of twenty-four motions were required, and only two instead of four necessary to secure the twist; since the invention has become public, so much ingenuity has been brought to bear upon the construction, that only six motions are required for the production of the mesh, by this means the speed of the machine has been increased four-fold, and in consequence of the greater simplicity of the working, it has been found practicable to propel it by means of steam or water power. The net produced in the original machine was limited in width to one yard and a half, but many frames are now in use which make nets four yards wide. It has also been found practicable to work various ornaments into the net in slips and widths, which was impossible in the original machine. It is said the possessors of the patent were amply remunerated, though, since it has become public, their fabric which used to be sold for five guineas, has been reduced to half-a-crown per piece. The population of Nottingham, Lenton, Briston, and the neighbouring towns, in 1811, amounted to 47,000 inhabitants; at the last census, in 1831, it was rather above 80,000. It is computed that the number of persons, including children, employed in spinning and doubling the yarn used in the manufacture is 13,000; of men, women, and children in power net making 3,000; in hand machine making, nearly all of whom are men, 5,000; in winding, which is done by children at their homes, 4,000; in mending, done by women and children at home, 6,000—total 31,000. It is further computed that 100,000

The cotton trade.

women and children obtain a living, or at least assist towards their maintenance, by embroidering bobbin-net lace. This is the principal employment in almost every village for a considerable distance round Nottingham, and it is also followed to a large extent in the counties of Devon, Somerset, and Norfolk, as well as in Glasgow, in London, and in some parts of Ireland.

In addition to the linen yarn, the annual consumption of cotton now used in the manufacture is 2,400,000 lbs. weight, the value of which, including the labour, with a small quantity of silk, is no less than 30,771,000 square yards of the value of £1,850,650. About three-fourths of this quantity is annually exported, and chiefly in the plain state, the principal part to America, a large quantity to the north of Europe, where, it is said, the greatest part is smuggled across the frontier into France. The fixed capital embarked in this branch of industry is computed at very little less than £2,000,000, including the present value of 5,000 machines of various sizes now at work, even calculating what cost the original proprietors £2,000,000 it cannot be now valued at more than £200,000; as an example, eight machines which cost £5,000 in 1825, were sold in 1833 for £300. Within the last ten years, the French have produced ten millions of yards annually, by some machine set up at Calais; but to keep this at work, the owners have been obliged to smuggle yarn for their use from England, the French spinner being unable to produce fine yarn strong enough to bear the action of the machines, or sufficiently regular in its size to make good net; the importation of these fine yarns into France has been only recently legalised by an

ordinance dated 4th June, 1834, upon payment of a duty of seven francs per kilogramme, or about 2s. 10d. per lb.

John Thomas Beltrin, in his evidence before a committee of the House of Lords, states that about the year 1811-12, there was a supension of manufacturing profits, arising from disputes between the labourers and their masters; at one time their disagreements proceeded to such a height, and to such tumultuous conduct on the part of the workmen, that vast numbers were thrown out of employment, and whole districts became extensively pauperised by a mass of artificers thrown upon the poor-rates. Several parishes declared that their expenditure was greater than their income, and an application was made to the county magistrates for a rate upon other hundreds, in aid of the parishes so oppressed with poor; the magistrates were almost inclined to enter upon the question, but some parties having consulted counsel, stated that it appeared by law their beds must be sold from under them before such a rate, in aid, could be sanctioned. This necessity threw the poor themselves, as well as the proprietors of estates, upon consideration of other resources; a sum was raised, of about £6,000, and a committee appointed in different parts to distribute. The committee agreed that this relief should be employed solely in manual labour, and the frame work knitters were employed at small wages, about 10d. per day, a very meagre pittance to men who had been earning before from £1 to £2 a week. The consequence was, that this threw the artificers upon devising the means of self-support, and what was the result? They invented, amongst other means, the lace machinery, entirely to help on their frame knitting; almost as soon as this was known, the population, which was declared to be so abundant that no means could be devised to meet the demand, or supply the necessary food, rose up into such progressive improvement, that the supply of human labour was quite unable to meet the demand; even servants in gentlemen's families were tempted in several instances to withdraw not only their persons, but the capital which they had accumulated, for the purpose of dedicating their persons and property to the advancement of these manufactures. In a word, lace making proceeded at such an incredible rate, that single families of artificers were earning at the rate of ten guineas per week. This they effected by father and son working their machines, both by day and night; they took it in turns. So valuable was the machine frabricated by the ingenuity of these working men, that some of them were sold for more than £1,000 each; even labourers, for filling the post of these machines, were men hired at the rate of 21s. per week.

The cotton manufacture, though it ranks first in importance, has risen to pre-eminence of later date

than any other of our most important manufactures. Its entire value in 1760 did not amount to £200,000, but since that time, by the aid of human skill and machinery, it has not only extended its produce over all Europe and America, but we have been enabled to undersell the Asiatics in their cheap and home market, sending a larger quantity of our produce to the East Indies than to the United States. In 1824, Huskinson stated in the House of Commons, that the annual value of the manufactured cotton was £33,500,000; in 1827, it was £36,000,000; in 1834, at £52,513,416; and at present cannot be estimated under £45,000,000, deducting £9,000,000 for the cost of the raw material, though it certainly does not amount to that sum.* The capital employed was estimated at £65,000,000, in 1827; and at present exceeds £75,000,000; and, it is believed, the number of men, women, and children, engaged and dependant on this manufacture was only 259,962, in 1843; out of them nearly one half are from twelve to eighteen years of age. Such are the results of the combination of capital with the wonderful power of machinery, which has been calculated to be equal in the cotton manufactory alone to the work of *eighty millions of men!!* That the labour of such a small number of children should be made equal to one quarter of the population of China is astonishing; therefore, how unreasonable is the avaricious craving of the mer-

* In 1827, the cotton wool imported was 141,038,743 pounds weight.
In 1834, do. ..... 302,935,657 do.
In 1842, do. ..... 440,297,101 do.

cantile interest, to force the working classes that are employed in these cotton mills to such an extent as to injure their health, as well as the moral characters of those who are thus cooped up under the influence of close confinement for twelve or fourteen hours. However, as we proceed to examine the minuteness of this manufacture, it will be more apparent. At present, the amount of cotton goods exported forms nearly one half of the whole exports of the kingdom.

	£
The cotton goods exported to the United States in 1827 were ..	1,346,023
Hosiery	155,334
Cotton twist	1,928
	1,503,285
In 1843	1,153,186
The cotton goods exported to China and India in 1827 were ..	1,346,020
Hosiery	28,395
Cotton twist	131,383
	1,505,798
In 1843	3,873,186
Total exports of manufactured cotton	17,567,310
Do. cotton twist	7,101,308
Total	24.668,618

Notwithstanding the prices of goods have declined considerably since 1827, machinery has improved in a greater ratio. The cost of manufacture in 1830, was considerably less than in 1811, and the result has been so favourable to all parties, that the same sum will buy treble the quantity of cotton now that it would in 1811, and yet allow a better profit to the manufacturer and seller. The manufacture of cotton has been carried on in Hindostan from the remotest antiquity. Herodotus mentions that there are wild trees in India, which produce a sort of wool superior to that of sheep, and the natives dress themselves in cloth made from it. The manufactory obtained no footing worth mentioning in Europe till the last century. The cotton tree is an herbaceous plant, a native of

The cotton tree.

the East Indies, growing to about three feet high; the whole plant is downy, and, while young, sweet-scented; the blossom is of a pale yellow, with five red spots at the bottom, and its seeds, which are ripened in September, are enveloped in fine white cotton. The cotton which is produced in China, and of which the cloth called Nankeen is made, is said to be tinged with red, or dyed, in its vegetable state, which is supposed to be the cause of its keeping its original colour better than cloth that we can manufacture. During the earlier part of the eighteenth century, the manufacture of cotton fabrics in England was assuming considerable importance; no fabric consisting entirely of cotton was made in this country before the accession of George III., although many varieties of goods called cotton were made with the weft of that material and the warp of linen; some of them, perhaps, as early as the sixteenth century—this branch being on a limited scale, and chiefly carried on as a domestic manufacture. The demand for it had considerably increased towards the middle of the last century, though the average importation of cotton wool did not exceed two million pounds per annum; but a considerable quantity of cotton yarn was imported by the East India company. In working up cotton yarn an active weaver could keep in continual occupation three women at the wheel spinning weft, and unless that article could be obtained in sufficient quantity, he was unable to fulfil his engagements with the merchant and the wholesale manufacturer, the latter pressing upon the weaver for the completion of his work, compelled him to be urgent with his spinners. At the close of the century, the demand for this compound fabric had so much increased, that the greatest difficulty was experienced by the weaver, and all who were connected felt the want of some process for accelerating the operation of the spinners, and enabling them to keep pace with the loom. The weaver was often obliged to visit his spinner, walking a distance of several miles, to importune them for a supply of weft to keep his loom employed during the day. In these excursions he was met by other weavers, on the same errand as himself, and he was often obliged to treat the females with presents, in order to quicken their diligence at the wheel. These were the circumstances which led to the inventions of Arkwright, Hargreave, and Crompton.

In 1733, a model of a machine was constructed by a person of the name of Wyatt, by which it is asserted, "the first cotton thread ever produced without the intervention of human fingers," was spun: he applied to a foreigner, named Paul, who obtained a patent for this machine in 1738. In 1741, the invention was brought into practical operation in a warehouse

at Birmingham ; the machine was set in motion by two asses walking round an axis, and ten or a dozen girls were employed in superintending and assisting its operation ; this establishment soon failed. Wyatt's apparatus was next employed in a factory at Northampton, but this concern also proved unsuccessful.

The machinery was, in fact, ill adapted to its purpose, and the yarn which it produced was inferior to that obtained by the common hand-wheel. In 1758, Paul obtained another patent for a spinning machine, which invention did not succeed better than the former. The cylindrical cord was his invention, but it was not adapted to cotton, and on the breaking up of his factory it seems to have been employed in carding sheep's wool for hats. In 1760, it was again employed in the carding of cotton, and ten years afterwards, Arkwright introduced such improvements in its construction as rendered it a valuable auxiliary in the cotton manufactory. In 1757, the spinners could not produce sufficient yarn to meet the demand from the weavers and manufacturers. The imports of raw cotton amounted to £3,000,000, and in 1764 to 4,000,000 ; the supply of cotton thread only for the weft was very deficient. The warp was made of linen up to 1760 ; the spinning of what was used in the cotton manufacture was nearly as simple as that of India, though the loom was more strongly and perfectly constructed, and cord for combing the cotton had been adopted from the woollen manufacture. The process of spinning and weaving was generally

performed in the same cottage; but, as was said before, the weaver's own family could not supply him with a sufficient quantity of weft, and he had much pains to collect it from neighbouring spinners; thus his time was wasted, and he was often subjected to high demands for an article on which, as the demand exceeded the supply, the seller could put his own price.

Arkwright was the first person who directed his attention to this inconvenient state of things, for although the invention of Wyatt had been in use and patented some years, which deprived him of the honour of being the first inventor of the plan of spinning by rollers, yet it appears he had re-invented, and at the same time confirmed his claim to originality, which he mentioned in his case which he drew up for presentation to Parliament in 1782, at a time when his patent right was subjected to constant invasion; and it appears incredible, that if he had possessed a knowledge of the particulars of Wyatt's patent, he should have thus drawn public attention to it, since he must, in that case, have known that the production of the specification would at once have deprived him of every ground upon which to establish his own right as an inventor; nor is the ignorance of Arkwright, on this subject, by any means extraordinary, considering that this machine has proved a failure, not being able to produce a thread equal to the common wheel; although he was possessed of extraordinary powers of mind, he was an illiterate man. Dr. URE has endeavoured to account for the failure of Wyatt's invention, by his want of firmness for the difficult task of overcoming the prejudices and hardships a new manufacturing enterprise would introduce him into; being a man of good education, in a respectable walk of life, much esteemed by his superiors, and therefore favourably placed—in a mechanical point of view—for maturing his scheme; but he was of a gentle and passive spirit, and it required, in fact, a man of Napoleon nerve and ambition to subdue the refractory temper of the working people, accustomed to irregular paroxysms of diligence, and to urge on his multifarious and intricate constructions in the face of envy, prejudice, and passion. Such was Arkwright, who suffered nothing to turn aside his progress, and has for ever affixed his name to a great era in the annals of mankind. Richard Arkwright was born at Preston, in Lancashire, in 1732; he was brought up as a barber, and followed that trade in the town of Bolton. It is said that he gained some celebrity by his skill in preparing and dying hair, and that he travelled about the country buying and selling it, and possibly the information obtained in his journies may have led him to consider the possibility of machine-spinning, as he would, doubtless, have numerous

Arkwright's invention.

opportunities of observing the inconvenience occasioned by the weavers in the districts in which he resided. It is commonly stated that his first effort in machinery was an attempt to discover perpetual motion; but Dr. URE believes he disguised his first experiment under that name, a supposition not very improbable, considering the violent opposition then made to machinery. However this may be, he completed a model of his spinning machine in 1767, and applied to Atherton, a mechanic, of Warrington, for assistance, who declined taking any share in what appeared so hazardous an enterprise, but sent two workmen to assist Kay, who had been engaged in making the model. The machine was soon made, and set up privately at Preston.

Arkwright, being assisted by a friend named Smalley, took measures for the construction of other machines on a larger scale; but apprehensions, excited by the recent riots against Hargreave's invention, induced them to abandon their native county; Arkwright and Smalley, therefore, went to Nottingham, whither Hargreaves also migrated about the same time. Between the date of this invention and Wyatt's, a spinning jenny was invented by James Hargreaves, a weaver, residing near Blackburn, amongst a number of others, which claims some notice. Though it did not essentially differ from the common hand-wheel, yet it enabled one person to spin several threads; and the spindles were by this placed vertical, or nearly so, whereas the old wheel was always horizontal; and it is said that the attention of Hargreaves was first attracted to the subject by observing the continued motion of a spinning wheel that had been accidentally overthrown with spindle upwards; this was about the year 1764. Hargreaves made and sold several before 1768, when the violent opposition of those who fancied themselves likely to be injured by the introduction of any me-

The spinning jenny introduced.

chanical substitute for human labour, compelled him to leave the neighbourhood. When his secret was known, not only the machine was destroyed by a riotous mob, but even his life was threatened; he therefore removed to Nottingham, where he established a small spinning mill, in connection with James, a joiner. In 1770, he obtained a patent, but unfortunately it was invalidated, by having sold several jennies before it was procured; his patent, therefore, was of no use solely to him, and was extensively invaded, and as he did not accede to the proposition of the delegates of the manufacturers, who offered him £3,000 for permission to use his machine, he eventually gained nothing by it, excepting what he realized by his share in the factory at Nottingham. He died in 1778, but he did not fall a victim to poverty, as some have stated. The spinning factory in which he was a partner went on tolerably well, and enabled its owners to live in humble comfort; at least, to leave a decent provision for his widow and children. Hargreaves' invention did not materially alter the domestic character of the employment.

The jenny being introduced into cottages of many of the Lancashire weavers, the principle itself only multiplied at first to eight spindles; but subsequent improvement greatly increased the number to eighty and upwards. It appears that both Hargreave and Arkwright migrated to Nottingham, because it was then, as it is now, the head-quarters of the frame knitting trade, in which, perhaps more than in any other branch of the cotton manufacture, the want of good yarn was a serious inconvenience. The common hand-spun yarn, and also that made by the jenny, being too soft and loose for making good stockings. Here Arkwright's invention was encouraged for a time by Wright, the banker, who however, soon became alarmed, and withdrew from the concern. They introduced Arkwright to Need and Straw, who had before invented the only

Watt's first patent.

important improvement in the original stocking frame of Lee, by which it was enabled to produce rib-stockings. These gentlemen appreciated the value of this new invention, and with their encouragement he effected improvements in the factory in 1768; and which machinery was worked by horse hower. In 1770, he became connected with them in partnership; a year also memorable for the first patent taken out by Watt, who describes himself as a clock maker. The invention for which this patent was obtained consisted principally of two pairs of rollers, between which the rovings of cotton are drawn, the second pair being made to revolve much faster than the first; in passing between the first pair of rollers, the cotton is in the form of a thick but very soft cord, which is slightly compressed, and receives no further alteration; but, as the second pair revolves more rapidly than the first, it is evident that the cotton between them must be drawn out to a length proportionate to the difference of their velocities: thus if one pair of rollers revolve twice as fast as another, the thread would be drawn to double its first length; and if they revolve ten times as fast, it would be equal to ten times its original length. To enable the rollers to hold the cotton the upper one of each pair is covered with leather, while the lower one is of wood and fluted. They erected their machinery on the river Derwent, at Cromford, and the first Spinning Mill was worked by water power; the nursing place, says Dr. URE, of the factory opulence of Great Britain. "Here," he says, "may be seen at work the original frames of the inventor; proofs demonstrative that Arkwright was no plagiarist of other men's ideas, since he had then created a grand productive automaton, unlike everything else on the face of the earth." From the use of the water power in impelling the machinery of this mill, Arkwright's machine obtained the name of the water frame, and the thread produced by it was called the water twist.

In 1775, a second patent was obtained, in which several new contrivances were embraced, some of which it was alleged by his opponents were not the invention of Arkwright, and this afforded a pretext for those who invalidated his patent to avail themselves of mechanism, which, to say the least, Arkwright was the first to bring into practical operation. In fact, the whole course of conduct followed by his opponents indicates a most disgraceful want of principle and of fair dealing towards this benefactor of his country; they bribed away the persons whom he

had trained with no inconsiderable labour to the processes of his factory; they inflamed the passions of the mob to such a degree as to cause the destruction of a mill he had erected near Chorby, which was burnt in the presence of a powerful body of police and military, without any of the civil authorities requiring their interference to prevent the outrage; and they *even formed a combination not to purchase his yarn*, although its very superior qualities were acknowledged. At length Arkwright brought actions against nine of the pirating manufacturers, but he was nonsuited in the first case, not on the ground that his invention was not new, but on the plea that his specifications were not sufficiently distinct; he therefore abandoned the other eight actions, but published a statement which he called his "case" in the hope of obtaining an act of Parliament to confirm his second patent, although it had been quashed in a court of law; an object which he did not pursue. In this publication it was stated that he had established a business that already employed *upwards of five thousand persons*, and a capital of not less than £200,000. But to return to the history of Arkwright, and his inventions. The combinations among the manufacturers to discountenance the use of his yarn, which left a large stock upon his hands, compelled him and his partner to contrive a scheme to manufacture it themselves into hosiery and cotton cloth, as an article quite new, because, being entirely formed of cotton, it was cheaper than the old fabrication with the wift

Crompton invents the mule jenny.

only of cotton. This manufacture succeeded so well in the stocking making as it did in that of calico, which was commenced at Derby, 1773.

Another invention connected with cotton-spinning claims particular notice contrived by Samuel Crompton, called a mule on mule jenny, from the circumstance of its combining the principles of the spinning jenny of Hargreave, and the water frame of Arkwright. This machine was invented about 1776, but did not come into general use till about ten years later, and could not then have been used publicly but for the annulling of Arkwright's patent. Crompton devoted much time to it, and endeavoured to work it in secret; but the superior quality of the yarn supplied by him, attracted attention, and he was at length compelled to make it public. Dr. Ure remarks, the mule enabled the spinner to make a prodigious advance in the fineness, as well as rapidity of his work, and it may be considered as the parent of the muslin manufacture, destined in so short a time to render Europe the successful competitor of the hitherto unrivalled productions of Hindostan. The rapid strides made now in the cotton manufacture threw the other manufactories in silk, woollen and linen, comparatively in the shade, notwithstanding they also progressed, by the aid of machinery, beyond anything our forefathers had the least idea of. The progress of weaving received but few improvements during this period, the principle being a new mode of throwing the shuttle, by which the weaver was enabled to produce a much greater quantity of cloth in a given time, and of any width required. This improvement was adapted from the woollen manufacture, where it had been used some years. Strutt's improvements on the stocking frame introduced new articles of all sorts of cotton goods. At this time the weaver *had full employment*. The number of looms increased as well as the demand for the manufactured articles, all classes appeared to be labouring at progressive improvement and prospered, when a new invention of Dr. Cartwright's power loom burst upon society, but was not yet brought into profitable operation; one difficulty in using the machine was obviated by another invention in 1803, by William Radcliffe, of Stockport. An ingenious machine for dressing warp before placing it in the loom. Other ingenious men also directed their attention to the improvement of the power loom, (it appearing the demand now for weaving was greater than the possibility of supply), and H. Horrock, another Stockport cotton manufacturer, obtained patents in 1803, 1805, and 1815, for an improved loom, which was constructed wholly of iron, and was found so superior to its predecessors in simplicity and compactness as to be the only loom which, for a long period came into general use. Baines, however, states that there were not more than 2,400 looms, and 100 dressing machines in use in the year 1813; but Horrock's loom was adopted extensively before the close of 1820; the total

number in use in Great Britain was 14,150, of which 12,150 were in England, and 2,000 in Scotland. Improvements were also progressing in the spinning, so that in 1815, one person could spin by the use of machinery as much or more than *two hundred persons* could fifty years before; buildings were erected on a large scale, more costly, and some of them magnificent, superior to the castles of the nobility of ancient days. The progress of machinery has been still greater—in 1818, the power looms of Manchester, Stockport, and their vicinities, were 2,000, in 1827 they were 45,000, and in 1840 the number is 70,000. The silk and several other manufactures have increased at an equally rapid rate. To give an idea of the value and extent of the machinery employed, the following statement, made by the Editor of the *Quarterly Review* in 1826, of the power of machinery applied only to the single manufacture of cotton, supposing only 250,000 men, the whole number being 259,962, nearly half of which are under eighteen years of age, and one quarter under thirteen, employed in the cotton manufacture fifty years ago, it would have required *forty-two millions of men*, or *fifty-three*, according to some economists, to produce the same result. Supposing the labour to cost £18 per annum each, it would amount to £756,000,000; deducting from this sum the pay of the labourer now really employed at the above annual rate, 280,000 multiplied by 18 would give £5,040,000, and allowing fifty millions for wear and tear of machinery, building, &c., the result is that machinery employed in this manufacture saves *seven hundred millions annually* to the British nation. At the time of the invention of the power loom, it is stated that the number of hand loom weavers was 840,000, and this estimate is confirmed by the report of the committee of 1835. Thirty or forty years ago, this class stood at the head of British operatives in amount of earnings, intelligence, education, and general respectability, but it appears that these have been entirely superseded by the power of machinery to about 200,000, who still have great difficulty to gain a living, and the greatest part of these are not employed in weaving cottons.

The analysis of population will confirm the statement, indeed, in forming an estimate of the actual condition of the weaving population, the rates of wages stated in *Baines' Essay* to be from 5s. to 7s. per week; sanatory reports state 4s. 6d. to 5s. Miserable as this account may appear, it would give us far too favourable a view; irregularity of employment, and the slightest fluctuation in commerce, invariably throw multitudes of looms out of work. The result

of the information the commissioners received in 1838-39 was, that on an average of many years, the weaver was out of employment at least one-third of his time ; even when in full work, there was a loss of time in changing fabric on the loom and going to manufacturers for work, and which, we are told, amounts on the lowest average to one week in eight ; and it is reported that there is now building, a large manufactory in the north, in which are upwards of 8,000 power looms on a very large and improved principle, in one room or building, that alone can weave almost enough for the supply of the United Kingdom. So remarkable were the inventions of Watt and Arkwright in effecting an entire revolution in domestic industry, that the spinning wheel was supplanted by the spinning jenny, the hand loom by the power loom ; and, by the application of capital and machinery on a large scale, enormous additional power was obtained over the productions of nature for the use of man, but the advantages thus obtained were useless to the operative without the assistance of the capitalist, who set the gigantic factory in motion. Hence, manufacturing society came to be organized on a new footing. Factories have sprung up like so many baronial castles, where great cotton or woollen lords reign supreme over the happiness and welfare of hundreds of retainers. The master manufacturer was placed there by the hand of Providence, as the feudal baron was in days long past, to be the head and leader of a little community

whose welfare was, from the nature of the case, entrusted in a great measure to his keeping. How then has he fulfilled this trust? With some noble exceptions, we may say the capitalist and master manufacturers of England have not only not fulfilled the trust committed to them in any tolerable degree, but have acted with a deep unconsciousness, that they had any trust or duty to fulfil beyond that of getting rich as fast as they could; the operatives by whose labour immense fortunes were amassed have been treated too often as if they were mere machines.

The evidence of this is clear by the factory regulation bill, which enumerates "the employment of children below nine years of age as common; 2, the average term was frequently fourteen hours a day, and was sometimes continued throughout the night, and even for forty hours without intermission; 3, this excessive amount of labour was frequently extracted out of the children by severe punishment, inflicted at the discretion of reckless and irresponsible overseers; 4, in a majority of cases, no provision was made for the education of the children employed in factories; 5, nor for the preservation of decency among a promiscuous assemblage of every sex and age; 6, no attempt was made at any moral superintendence over the factory workmen when out of mill; nor of providing for those who were thrown out of employment by the want of demand for adult labour, or disabled in the service by accident or illness." A first-rate cotton spinning factory cannot be built, filled with machinery, and fitted with gas-works and steam-engine, under £100,000. A steam-engine of one hundred horse power will turn 50,000 spindles, which will produce 62,500 miles of fine cotton-thread per day. In such a factory, 1,000 persons will spin as much thread as 250,000 persons could without machinery. M'Cullock estimates the number in Britain at 130,000. It is evident, from this view of the manufactures of Great Britain, that it is a mere paradox to believe we can go on in this ratio another half-century, though some theorists may argue that there can be no such a thing as glutts, because the desire of mankind for the articles of commerce is unlimited; the vague desire is no effective demand, which only arises when the desire is strong enough to induce persons to labour in order to produce an equivalent, and where circumstances permit him so to do. There is no effective demand for our manufactures among the Lazaroni of Naples, not because they do not prefer good clothes to rags, but they prefer idleness with rags to labour with good clothes.

CHAP. XV.

TIN, COPPER, AND COAL MINES.

The Cornish tin mines—Copper mines—An account of Gwennap mines—Botallick mine—The mines of the midland counties—Manner of preventing strikes among miners—Caradon mines—The coal mines—Manner of working them—Sir H. Davy's safety lamp—Gas from coal—Burning well near Wigan—First introduction of gas for domestic illumination—Number of persons employed in coal mines—Extensive coal fields—Coal miners—Their habits, dress, and language.

THE MINES in the county of Cornwall alone produce more copper than all the other copper mines of Europe put together, and in no other part of the world are there any so productive. These vast treasures became known at a comparatively recent date; their records in Britain are scanty and imperfect, prior to the seventeenth century. The Romans had brass foundries in different parts of the kingdom, but it does not appear from what locality they had the copper; it is probable, that most of it came from the isle of Anglesea; as copper ores in that island, as well as in most parts of Cornwall, lie near the ground—there being no remains of any operations among the copper mines in this county, below the surface. In 1586, copper ore from a Cornish mine was first shipped to Wales, to be refined; but prior to 1700 it was principally, if not wholly, derived from tin mines, or those which were originally worked for tin. Copper was largely imported in the early part of the eighteenth century, and it was not till 1720, that this

Gwennap mine.

country was supplied with this metal from its own mines. The copper money of Great Britain was not coined from British metal till 1717. At the revolution of 1688, the crown gave up all claims to the ores of what were termed the ignoble metals, and in prospect of realizing great profits, large capitals became invested in mining speculations in Cornwall, which have been increasing as the skill and machinery employed for raising the ore, and conveying off the water from great depths, have progressed. The produce of these mines is various, some being so poor as not to afford more than half a ton of pure copper annually, while others yield from 1,900 to upwards of 2,000 tons, some of them being worked to the depth of 1,368 feet beneath the surface.

The consolidated mines are by far the most extensive of any in Cornwall, or indeed, in any part of Europe; they are situated in the parish of Gwennap, about three miles from Redruth, along the brow of a range of steep hills, and occupy an area of 800 acres; the site is about 300 feet above the level of the sea, and the bottom of the deepest shaft is 1652 feet from the surface, being the deepest excavation in Great Britain. The principal lodes are from two to eight feet wide, with branches from them varying from twelve to eighteen inches in width; there are vertical shafts or pits sunk upon the different lodes, which in the aggregate exceed twenty miles in perpendicular excavations over the whole area; and the aggregate extent of the levels, or distances in all directions, from these shafts, is about forty-seven miles. The enormous power of machinery employed on this concern, for drainage or other purposes, greatly exceeds any similar combination in the whole world, and forms an unparalleled example of mechanical skill and ingenuity, as applied to mining on its most extensive scale. This machinery consists of eight very large steam-engines, of thirty inch cylinders, used for draining the mine; eight steam-engines, of about twenty inch cylinders, are employed in drawing ore and vein-stuff—being altogether seventeen steam-engines, of which four are the largest ever erected. There is also a water-wheel, forty-two feet diameter, employed in pumping; another of thirty feet, for driving machinery; and four smaller ones for stamping, and other purposes; together six in number. Several horse-whims are also employed.

Botallick mine.

Calculating the force constantly exerted by this stupendous accumulation of mechanical power, when working at a moderate rate, it may be stated as equivalent to one thousand horses; which, however, is by no means the extent of its power: three relays of horses would be required in the twenty-four hours, besides an extra stock for casualties, making the number of horses to which the engine work of the consolidated mines *is equivalent, to that of not less than three thousand horses!!* It should be taken into account that horse-power, so termed by engineers, exceeds the strength of an ordinary horse nearly one third, and bearing this in mind, it will not perhaps be over-rating the engine work to state that it is equal to *four thousand horses!* and, if carried to its full extent of power, double that number. The amount of human labour is proportionate to the power of machinery—the number employed being about 2,400, independently of the numerous class who derive support in an indirect manner from these mines. The average quantity of fine copper annually produced up to 1831, was 1,300 tons—since then the quantity has considerably increased; in 1832, it was 1,530 tons; and in 1833, 1,914 tons.

There are several Cornish tin mines worked under the sea; one in the parish of St. Just, where the entrance to it is almost on the very edge of the precipitous termination of the land, and the workings extend from the vertical shaft far under the bed of the ocean. It is long since the Cornish miner showed his daring intrepidity in undertaking works of this nature, for Botallick mine has been wrought under the sea from a very remote period; the mine of Huel Cock, in the parish of St. Just, is worked eighty fathoms in length under the sea, below low water mark, and the sea in some places is but three fathoms over the back of the workings, insomuch that the miners underneath hear the break, flux, and reflux of every wave, which upon the beach overhead may be said to have had the run of the Atlantic ocean for many hundred leagues; add to this, that several parts of the lode which were richer than others have

been indiscreetly culled, and worked within *four feet* of the sea; whereby, in violent stormy weather, the noise overhead has been so tremendous, that the workmen have many times deserted their labour, under the greatest fear, lest the sea might break in upon them. The lodes vary from a few inches to thirty feet wide, and generally run east and west. In Relistian mine, the lode is thirty feet. The copper mines of the isle of Anglesea, those of North Wales, of Westmoreland, Lancashire, and Cumberland, and in the isle of Man, are found generally in primitive or transition rocks; the ores lie sometimes in masses, but more frequently in veins, a few in metalliferous limestone. The working of copper in the Isle of Anglesea may be traced to a very remote era. It appears that the Romans were acquainted with the Hamlet mine near Holyhead, but it was worked with very little activity till about 70 years ago. This mine was first worked as an open excavation, but it is now upwards of 300 feet deep, and appears from above like a funnel.* Galleries are formed at different levels upon the flank of the excavations to follow the several veins. There is a tin mine very similar to this near St. Austle, in Cornwall, which no doubt was commenced in the time of the Romans; it is about 200 feet deep, from the top of the hill where it is situated.

* The water is so scanty in this mine that it is pumped up by a six horse steam engine, a great portion of which is impregnated with sulphate of copper which is conveyed into reservoirs containing pieces of old iron. The sulphate is then decomposed into copper of cementation.

Number of miners employed.

The *number* of men employed in the various mines in the county of Cornwall must be considerably more than it was in 1678, not only from the addition of copper, but the manganese, lead, and silver lead mines. Though some idea of their number may be gathered from the rising of the tin miners in the reign of James I., when Bishop Trelawny,* with the six other Bishops, were confined in the Tower, for refusing to acknowledge the King's declaration for prohibiting liberty of conscience, which was only a cover for the papal dominion: the Cornish miners rose in masses to get him liberated, and marched as far as Exeter for that purpose, when the song or tune they marched by, was set to the following lines:

"Shall Trelawny die! Shall Trelawny die!
"*Forty thousand* Cornish boys, will know the reason why!"

So that their number, at that period, must have been very great. The Cornish miners have been for ages considered as men of talent and enterprise in pursuing their labours; the manner employed in taking their work is a plan that has long been used in the mining operations in Cornwall, and so admirably does it reconcile all conflicting interests, that *strikes* among the miners are unknown, although so prevalent among labourers of a similar class in the north of England; we allude particularly to the coal miners with whom a much less perfect system of payment prevails, and to whom combination and strikes, together with the outrage and violence frequently attending them, must be a great bar to their improvements, as well as to the varied and complicated relations incident to a highly civilized state of society. There is perhaps nothing which is more difficult to adjust in a fair and satisfactory manner than the arrangements which exist between masters and men—between that class whom education, talent, and the possession of capital, places in a situation to direct and employ, and that far more numerous class whose skill and labour can only be rendered available through the medium of the former. The system pursued amongst the Cornish miners, where these difficult relations are made to adjust themselves, claims the serious attention of those who have to employ large bodies of them; which, we have learned, has been adopted in some parts of the kingdom with success. With the exception of a small number of the individuals employed as superintendents, clerks, &c., and who of course are paid by fixed salaries, the whole labour of the Cornish mines is performed *by contracts made at stated intervals*, generally once in two months; these contracts are made in the air, and the proceedings are attended by all the miners in the neighbourhood who may be desirous of undertaking any of the work which is to be performed; the manner in which the business is carried on is very similar to a common auction, the different parcels

* Sir Henry Trelawny, Bishop of Bristol, was of a Cornish family, had large estates in the county, and was deeply connected with the mining interests, and much looked up to as a person of influence.

Different mining operations.

of work being the articles bid for, the men are the *purchasers*, or more properly (though technically) speaking, the "*takers*" of these allotments, the prices at which they are taken being entirely regulated by the competition among themselves. There is, however, this peculiarity: that the work is always put up at a price much higher than ought fairly to be paid for it, and this price is gradually reduced to a proper standard by the competition among the men. The whole proceeding is guided by certain forms and regulations binding on all parties, which are read aloud at the commencement, and the contracts remain in force for the ensuing two months, when they are again renewed in the same manner, due allowance being made for all the varying circumstances which may have affected the works during the preceding interval.

The work done in the mines of Cornwall is principally of three kinds, technically termed "tut-work, tribute, and dressing." Tut-work consists in making all those excavations which have for their ultimate object the discovery or extraction of ore, but which is not excavated for the sole purpose of obtaining it, being often made in the barren rock, or in an unproductive part of a vein; of this kind are shafts, cross-cuts, levels, winges, &c. This work is paid for by the fathom, and when the substance is observed to be of any value, the miner receives in addition a certain proportion of that value, which induces him to keep the ore as clear as possible from the rock or rubbish. The price usually paid varies from £4 or £6 per fathom to £30 or £40, depending on the hardness of the ground—there have been as much as £80 to £100 per fathom paid in extremely hard and difficult grounds. Tribute is, in some manner, the reverse of tut-work, since it includes all those excavations from which the ore is actually obtained, which are made merely for the purpose of procuring it. As the quality of the ores is extremely variable, this kind of labour is not

paid for by the quantity of work done, but by a certain proportional part of the actual value of the ore, when brought to the surface, and reduced to a saleable state : to which it is generally sold on the mine, the business of the miner and smelter being usually quite distinct, and carried on by entirely different parties. The mode of estimating the price of tribute, is by a certain sum for every twenty shillings worth of ore raised from the mine and rendered saleable ; this also is extremely variable : where the ore is rich and abundant, from sixpence to one shilling in the pound is paid; but when, on the contrary, it is poor and in small quantities, the tribute amounts to fifteen or sixteen shillings. In executing either description of work, from two to four men usually work together ; and as they proceed day and night without intermission, it is necessary that the party who takes the work, should consist of three times the number actually employed at a time, so that different sets of men may relieve each other in succession, each party working but eight hours in the twenty-four. By a singular misnomer, such a party of men, although usually varying in number from six to twelve are always called "a pair," one man amongst the rest generally takes the lead in making the bargain, and he is considered the responsible person and called the taker. Dressing consists of those processes which the ore undergoes when brought to the surface, in order to reduce it to a state fit for smelting ; and is chiefly performed under the same contract as tribute, of which it may be said to

form a part, although carried on by a different set of persons.

A few days previous to the survey, as the auction is termed, the captain or superintendents of the mine examines every part of it, and determines what operations shall be carried on for the next period of two months; each of these works is distinctly specified and registered in a book kept for the purpose, and opposite each is marked the rate which, in his opinion, will be a fair remuneration to the men for performing it: the captain being always selected from the most intelligent working miners, he is of course well qualified to form a correct judgment on this head. As all the contracts for the preceding two months expire on the sitting day, it is, of course, a holiday to those employed on the mine, who collect in scattered groups throughout the subterraneous recesses, and enjoy for a time the light of heaven, where the survey is to take place, it being generally before the office or counting-house, where all the business of the mine is transacted. It sometimes happens, that the men may have agreed not to bid less than a certain sum for the work, and this sum will of course be higher than what the captains have valued it at. Should the captains still be of opinion that the price they have fixed is a fair one, the work is not considered, in this case, as actually taken; the captain, as is usual in trading auctions, is at liberty to buy it in—in this case, the first option is immediately given to the last bidder to take it at the captain's price; should he refuse, the other bidders have, in succession, the same option; should, however, the combination become general, this piece of work, or any other similarly circumstanced, is passed over, and set up again on some future occasion. In this manner, the business proceeds till all the different prices of work, or bargains, have been taken by the men, and often in the course of two hours, works are disposed of to the amount of perhaps several thousand pounds; and which will furnish direct employment to many hundred persons for the next two months. All waste of time and trivial disputes are thus avoided; and what is of far more consequence, the price of labour is by this system continually adjusting itself to that standard which is determined by an infinite variety of complicated and fluctuating circumstances, which no combination either of masters or men can permanently alter. It requires but little examination to perceive that the interests of the men and their employers are most effectually combined. Tut-work is much the same as piece-work or contract-work, so often performed in various manufactures and agriculture of late years. As, however, there are means by which fraud might still be carried on to some extent, this is in most cases effectually prevented by the vigilance of the captains, who, having themselves been working miners, are well aware of the nature of any deceit that might be attempted.

The antiquity of tin mines.

Another great advantage of the tribute system depends in great measure on the peculiar nature of the employment. Mineral veins are always extremely inconstant and variable, both as to quality and value of the ores which they produce; and from certain indications, the experienced miner can often foresee changes of this kind before they actually take place. Intelligent and enterprising tributers will often, therefore, undertake to work parts of a mine (of course at a high rate of tribute), where the ore is poor, which would otherwise be neglected, because from long observation and experience, they are able to see a probability of improvement or discovery, and, should this take place, especially soon after the beginning of a contract, their profits may be very considerably increased. Sometimes, by this piece of good fortune, provincially termed *a sturt*, a party of four or six men have made a profit of five or six hundred pounds in the course of two months. It was owing to such circumstances as these, that some of the first families, at present in Cornwall, may attribute the acquisition of their fortunes. It is said that, of the Lemon family one of their ancestors was originally a miner, and obtained his wealth from a knowledge of the working of a mine, when he was only a labourer.

Tin has been known from the most remote antiquity being mentioned in the books of Moses. The Phœnicians carried on a trade in it with Spain and Cornwall. This ore has been found but in few localities; Cornwall appears to rank first in importance; Bohemia

Saxony, Malacca and Bonça in Asia are next; small quantities are found in Spain, and in the department of Haute Vienne, in France; the columnar pieces of tin ore from Mexico and Chili are the products of stream works; small quantities of black tin crystals have been lately discovered in the albite of Chesterfield, in Massachusets. Tin is the only alloy of iron useful to the arts, in the formation of tin plate or white iron. The sheet iron intended for this manufacture is refined with charcoal instead of coke, subsequently rolled to a degree of thinness, and cast into rectangular parts of different sizes, by means of a shearing machine driven by a water wheel, which will turn out one hundred boxes per day, or four times the number cut by hand. The first step towards tinning is to free it from every particle of oxide or impurity, for anything of this kind would prevent tin from uniting. A patent was obtained in 1829, for cleaning the sheet iron plates with diluted sulphuric acid, instead of the old process, whereby, it is said, a better article is produced at a cheaper rate.

Formerly, from a deficiency, either of capital or of enterprize, the miners seldom extended their operations beyond a single vein of ore, although there might be other veins in the immediate vicinity, from a deficiency of engine power, available in cases of accident. But, every article now is in readiness for using before it is wanted, and, in consequence, an interruption of the works seldom happens, unless from circumstances which can neither be seen or guarded against; the sump (or deep engine shaft) is sunk so rapidly, that a level may be driven into the lode every year, in many of the deepest mines, and then the lodes are more speedily and fully explored; the neighbouring country is ransacked in search of other lodes. A great many more persons are now employed than used to be on the same mine, and the produce is amazingly increased; scarcely any mine, thirty years ago, produced five hundred tons in a month, but we have

The copper mines.

lately seen mines which produced nearly fifteen hundred tons, for the same cost. All this additional labour in draining the water, in agency, and in many other respects is the same as if only half the number of workmen were employed. It has been noticed that the Copper is shipped to Swansea for the purpose of smelting. The consumption of coal in smelting the Cornish copper ores was estimated at 200,000 tons, and, it was calculated, a similar quantity is used in the various manufactures of copper and brass. The quantity of copper ore sold in Cornwall in 1835, was 150,617 tons, yielding 12,271 tons of pure metal, valued at £893,402. The export to all parts of the world in 1830 was only 881 tons; in 1832, 1,326; in 1835, 3,267; in 1838, 5,000 tons. To compare this with the imports of foreign ore for the same period, with the gradual advance during the same time, of the value of copper, it will appear that the admission of foreign ore for smelting is a manifest advantage to the British Copper mines, for it has made this county what it now is, the regulator and distributor of the copper produce of the world. Our country is the only one to which all others consuming and not producing copper must look for a regular and economical supply. The number of miners in the county of Cornwall alone is but little short of 200,000 men, besides the numerous classes that are dependent on them. The copper raised annually in Devonshire is 5,514 tons, and the quantity raised in various other parts of the kingdom, 14,474 tons, excepting in the Isle of Anglesea, which produces 350 tons. The Perry mines, of Anglesea, have furnished 10,000 tons of ore per quarter, exclusive of what is produced from the water pumped out of the mine; the number of miners employed in them is about 1,200, and the number of men and boys employed in the other works nearly the same. In the tin mining, the consumption of tin has increased the energies of the people to procure it. The East India Company undertook to purchase a large quantity to export to China and the East Indies; which rose the value and increased the demand; so that, though only 750 tons of *metal* were the decennial quantity per annum before 1791, yet, in 1800, 1,118 tons per annum was the average the next ten years; then, 1,600 tons from 1811 to 1820; from 1820 to 1826, it rose to 3411 tons, and the quantity in 1829 was 26,344 blocks, weighing 4,396 tons. At the beginning of this demand, the price was £75 per ton; it got up to £80 in 1812; in 1815, the price was £170 per ton; from the increased demand from the home market in making tin plates, the East India Company declined buying at £80, when they supplied themselves with tin from the mines of Bonça, and from the Malay mountains in India, and brought their supplies into this market; notwithstanding, our price has declined to £70 10s., which is attributed to a variety of causes, mostly to improvements in the art of working the mines, and partly, by the increased supply of metal; for, before the competition of the Bonça mines, we had, in some measure, the monopoly of the world.

The quantity of lead raised in the Kingdom is 47,000 tons, 17,000 tons of which are called silver ore, having an average of eight ounces and a half per ton.

Silver extracted from silver ores, properly so called, *ex* Cornwall, is 36,000 oz. Amongst the adjuncts to the copper works of Anglesea, is a manufacture of sulphur, which is produced by the roasting of the ore, and there is a rolling mill for grinding the material for fire-bricks; also, a manufactory for blue (sulphate of copper), and alum. About thirty years previous to 1797, it is stated, there were not half-a-dozen houses in the whole parish of Amlwich (in Anglesea), but the works now give support to a population of at least from four to five thousand persons, of whose character Aikin, in his "Tour of North Wales," gives a very gratifying account. "Not a single instance of drunkenness, not a quarrel has been witnessed during two very crowded market days, and one of them a day of unusual indulgence; most of the miners are Methodists, and to the prevalence of this religious sect is chiefly to be attributed the good order that is so conspicuous."

The value and importance of a good mine to any district in which it may be situated may be readily imagined, by glancing at the disbursements and receipts which it occasions – as an illustration. *The West Caradon mine*, near Liskeard, which was commenced only in 1840, in the space of four years has had £19,660 expended thereon in wages; in machinery, and other materials, £13,830; and in miscellaneous expenses, £2,560; making a total of £36,050: the adventurers have paid out of that amount, out of their private incomes, *only* £5,120; and the *copper* sold has realized £31,050, making the whole amount received £36,170. In this mine there are three steam engines constantly employed, one for draining off the water, another for stamping and crushing the ores, and a third for drawing the ore and rubbish to the surface. The number of persons of all descriptions employed *directly* in this mine is three hundred—besides those who are indirectly employed in other operations connected therewith. There are expended £950 per *month* in wages and salaries, and £250 per month in wear and tear of materials, making a sum of £1,300 monthly expended; while its monthly sale of ores amounts to £2,200, making an annual amount of £26,400, which leaves a monthly profit to the adventurers of £900. By glancing at the above results, we may see the advantages of mines to the neighbourhoods where they are located—to the labourer, the artisan, the mechanic, the engineers, to the government, and to the kingdom at large.

In connection with the tin mines, the coal mines may be alluded to. So little system was formerly adopted in working them, that it frequently happened that not one half of the coals in the mine was available. Before the close of the eighteenth century, the use of timber pillars was partially introduced, and

thus instead of leaving about 60 per cent of the coal unworked, which was usual in deep mines, forty per cent only was allowed to remain, and by the improved system introduced in 1810, eighty or ninety per cent of the whole contents of the mine may now be brought to market. However, all other improvements would have been comparatively but little value to the coal mines, if the increased application of the steam engine had not brought an accession of power equal to the increasing expenses of this hazardous calling—by means of which besides the draining; they are now enabled to ventilate, and obviate the dangers of noxious vapours: and explosion of gases so that a current of air is forced down what is called the down cast shaft, by the use of wooden partitions, double doors, and other contrivances, and to pass successively through every gallery in the mine, and afterwards to escape by the up cast shaft, carrying with it as fast as emitted from the seams of coal any deleterious or explosive gases that it may meet with in its course

It is said that the plan of coursing the air through the winding galleries, which in some cases extend to thirty miles or more, and, as it were, converts them into air pipes,* although Sir H. Davy's apparatus† enabled the miners fearlessly

* From the old workings at Workington there is a small tube the mouth of which is not more than an inch and half diameter, from which proceeds a stream of inflammable air, which burns perpetually, and makes a jet of flame about a foot high, the flame is bluish, much like spirits of wine. Some time ago there was one at Whitehaven, quite similar, but now there is a free circulation of air, this stream being cut off.

† Sir H. Davy's lamp appears the result of a course of philosophical experiments, to which the attention of that eminent chemist was first called in 1815; these led him to try the effect of woven wire gauze, which he found to form, on ordinary circumstances, a complete barrier to the passage of flame.

to enter the workings of the most dangerous character, while the igniting of such inflammable gas as may pass through the wire gauze into the cage of the lamp, enabled him to have an accurate knowledge of the extent to which the air was impregnated with fire damp, and warned him when it was prudent to retire. But even the introduction of this lamp has failed to put an end to the fearful catastrophes, though there can be no doubt that many more fatal accidents would have occurred, but for its extensive use. From facts laid before Parliament, it appears that, as near as can be computed, 447 persons were killed by accident, in mines, in the counties of Durham and Northumberland, in the eighteen years preceding the invention, while in the eighteen years following its introduction, the number of lives lost from similar causes, in the same district, amounted to 538. This may be accounted for in the increased mining operations, together with the clearance of many of the old workings by the introduction of timber, and as an illustration of this increased fatality, many mines which were considered dangerous have been worked successfully, though, in a most inflammable state, without injury to the general health of the people employed in them ; but the feeling of security produced by the use of the safety lamp led to the neglect, in a great measure, of the precaution and vigilance formerly exercised.

The utility of coal to our comfort and convenience in the manufacture of gas, is very great, though, no doubt but there are other articles, as oil, animal fat, &c., which can produce a more brilliant flame; yet the cheapness and facility with which coal can be procured will preponderate over any other article which can be procured for that purpose. The astonishing success and improvement in the manufacture of gas in the metropolis, as well as in most other towns in the kingdom, its beautiful light compared with the dim twilight of oil lamps, formerly used, and also the immense distance it can be carried by pipes, are advantages which the present state of society duly appreciate. The gas companies of London consume 200,000 tons of coal per annum, and distribute their gas through 600 miles of pipe, amounting to 7,000,000 cubic feet every

twenty-four hours, on an average of the whole year, giving a light equal to what would be obtained from 300,000 lbs. of candles. The number of gas lamps in 1834, in London, was 168,000, besides the burners in shops; the oil of coal when relapsed by distillation, is extensively employed in a peculiar lamp, under the name of naptha.* The appearance of this vast metropolis at night is now so different from that which it presented within the memory of, perhaps, one half of those who frequent its streets. A generation or two before, the case was still worse; as late as in the reign of George II. the only lamps were lanterns, which housekeepers living in the principal streets were required to hang out, on dark nights, in front of their houses, from six to eleven o'clock, and the watchmen carried pots† hung on a pivot, of burning pitch, on long poles, to light their dreary way through the city, to prevent travellers and the inhabitants from being attacked by the nightly assassin.

* Assuming that a pound of candles, which last, when lighted in succession, 48 hours, costs sevenpence halfpenny; that a gallon of oil, which yields the light of 600 candles for an hour, costs two shillings; that 1,000 cubic feet of gas costs 9s.; and that wax is three times the cost of tallow; we conclude, that the relative cost of the same quantity of light will be equal to—wax 100, tallow 28.6, oil 14.3, gas 4.76; 200 of coal yields 17 of tar. This last article contains —in 100 parts of tar, 26 pounds of coal oil, and 48 of pitch.

† These lights were called cressets; on particular days 940 illuminated the streets of London, carried by two men, one to supply and trim them, while the other carried it on his shoulder; the expense was divided as follows:—200 defrayed by the city; 500 by the companies; and 240 by the city constables; besides wages, each man had a new straw hat, a painted badge; and a breakfast in the morning.

Ancient knowledge of gas.

Although so lately applied, its existence—as derived from coal, producing a large flame, which burns vigorously—was long known. There is an account of a burning well near Wigan, in Lancashire, in the *Philosophical Transactions*, of 1667, in which the author confuted the opinion that the waters of the burning well were inflammable like oil, as then believed, and remarked that the flame was produced by the combustion of bituminous fumes issuing from the water, which he felt "as a strong breath, as it were a wind" against his hand; these fumes he said were produced from the coal bed which underlies all that part of the country. The first published account of coal gas was about the beginning of last century, when Dr. Hales obtained from 158 grains of Newcastle coal, 180 cubic inches of gas; this account was written in 1726. Dr. Clayton's account, addressed to Robert Boyle, upon his experiments of coal gas, must have been prior to Boyle's death, which was in 1691; these experiments were suggested at the burning well at Wigan. He not only distilled the gas, which he called the spirit of coal, but he filled bladders with it, and frequently amused his friends by burning it like a candle. This is one of the many examples of the inattention of even philosophical and observing men to the useful and important discoveries almost thrown in the way. Subsequently to these early notices, many distinguished chemists have examined the properties of coal gas, but none of them seem to have discovered that the light would be useful. The merit of this discovery must be wholly ascribed to William Murdock, a Cornish engineer, who lit his house and offices with gas, at Redruth, in 1792. Five years afterwards, when resident in Ayrshire, he made a similar use of gas, and, in 1798, he partially lighted with it the manufactory of Boulton and Watt, at Soho. But the public attention was first drawn to the subject in 1802, when, in consequence of the general rejoicing at the peace of Amiens, it was determined to use gas for the illumination in front of the extensive range of building at Soho. The experiment succeeded perfectly, and the light was arranged in the tasteful and varied forms of which gas is so susceptible. Murdock, in 1806, received the gold medal of the Royal society, for a communication detailing the successful erection of a gas apparatus for the manufactory and dwelling house of Mr. Lee, of Manchester. So rapid has been the extension of the use of gas, for the purpose of lighting the public streets, courts, alleys, &c., that there is scarcely a respectable shop in the remotest towns, which is not lighted by gas, and we believe it will still be more generally used in cooking, which it is possible to perform with an economy and cleanliness that any other fuel could not perform. The brilliant display of gas flames which now are become so familiar, contrasted with the use of the old lamps and lanterns, may be regarded as one of the greatest improvements of the present day, of which those who lived heretofore—were they to behold—would scarcely believe, while they would gaze with astonishment.

The Staffordshire mines.

The coal trade gives employment to 40,500 persons, besides the miners from the north part to London, and it engages at least 1,400 vessels. These mines produce 28,498,193 tons of coal annually, of which nearly two millions are exported, and altogether 180,000 persons are engaged in the production and distribution of this valuable mineral; the capital employed in the coal mines is from eight to ten millions, on which the proprietors realize a profit of 10 per cent. It appears, that the Staffordshire districts were some of the parts where coal was first sought for, and a few miles beyond Birmingham travellers are still assailed with volumes of sulphurous vapour; they there view a country broken and scarred, as if it had just reposed from the heavings of an earthquake, now and then shuddering as they pass the mouth of a deserted mine, left without any guard; sometimes they see a large lambent flame (called by the miners wild fire) issue from chaps in the parched earth, this being kindled by a process familiar to the chemist, feeds on the gas evolved by the refuse of the coal that has been left in immense caverns, hallowed by the labour of ages, over which the eyes of the traveller glance for many miles; they will be struck there with the sight of houses from which the treacherous foundations have gradually shrunk, leaving them far from perpendicular, and in addition to this, his organs of smell and of vision are annoyed by the tremendous operations which are going on around him as far as the eye can reach,—the harsh grating of

the wheels, the roaring of the enormous bellows which are set in motion by the effect of steam, urging the fires of the smelting furnace, till they glow with almost the bright brilliance of the meridian sun, the sparks which fly from the half molten iron, under the action of the forge, in torrents of burning rain, while the earth itself literally trembles beneath the strokes of mightier hammers than Thor himself even wielded against the giants. But the labours of the labourious miners who inhabited and excavated these caverns of coal, while the forests flourished, would have been altogether unprofitable and an expensive mode of procuring fuel from the bowels of the earth.

The progress which England made in the first 200 years after the conquest prepared the way for the introduction of coal as an article of commerce. In the year 1239, Henry III. granted a charter for digging coal; forty years afterwards, Newcastle was celebrated for its coal trade. In 1306, its use was prohibited in London on account of the supposed effect which it had in rendering the air impure and unwholesome, but this prejudice was either soon dissipated or the cheapness and excellence of the material as an article of fuel became so apparent, that the prohibition was not very effective, and probably was soon abolished. In 1395, coal was exported to France. In 1379, a duty of six-pence per ton was charged on ships coming to London, from Newcastle, with coals; at this period, also, a duty was levied on such ships by the corporation of Newcastle, on their clearing out at their port. In 1384, Richard II., out of regard and reverence to the tutelary Saint of Durham, exempted the coal owners of the Wear from the corporation duty. Pope Pius visited this country previous to his elevation to the papal chair, and he remarked that the poor of Scotland received for alms pieces of stone, which they burnt instead of wood. The earliest mention of coal mines being worked in Scotland, occurs in a charter granted in 1291, to the monks of Dunferline. In the sixteenth century, sea coal was the term generally applied to this mineral, which proves that the state of the roads, and means of conveyance and communication were so imperfect, that the quantity which was furnished was trifling, and that the market depended almost entirely on the supply of sea-borne coals. Two hundred and sixty years ago, Camden, who travelled in various

The coal mines of Scotland.

parts of England previous to his publishing his *Britannia*, said in that work—"The north part of Staffordshire, hath coals digged out of the earth, and mines of iron; but whether more for their commodity or hindrance, I shall leave others to determine, who do or shall better understand it." England is by far the richest country in the world, as it respects her coal mines; they have been the source of greater wealth to her than even the gold mines of Peru were to Spain; because they are a source whereby man obtains a more direct power over a material which ministers so much to his comfort.

Considerable beds of coal exist in Scotland, and it has been found in seventeen counties in Ireland. The largest coal field on the continent is in Belgium; there are smaller ones in several parts of Germany. Coal abounds in the United States, and is more or less found in a line which sweeps round the globe from the north-east to the south-west. As we observed before, the traveller who visits, for the first time, an extensive coal district, will be struck with the vast volumes of smoke occasionally rolling their sluggish course in the direction of the wind: this smoke arises from the engine fires, and from the small coal burnt at the mouths of the pits. On the clearest day these fires impart a cloudy aspect to the landscape; the face of the country is black and blasted, this, united with the perpetual clatter of the waggon trains, may fill him with gloomy feelings, especially to see a peculiar race of men, whose similar characteristics are objects which strike the eye. Occasionally, bands of pitmen as black as sweeps, each man carrying a safety lamp suspended at his belt, are seen traversing the dingy lanes on their return from an eight hours shift of labour. The physiognomy of the miners is not, of course, of a very intellectual cast, but from the nature

The similarity of the coal miners.

of their occupation, and from living, as they do, in a great measure apart from other classes of the community, these peculiarities are strongly marked. These have been transmitted from one generation to another, owing to the unions which they form being almost exclusively confined to families, whose pursuit is similar to their own, and consist in high cheek bones, great width of the middle part of the face, and an angular form of its lower portion. In these respects, they are quite a distinct race from the neighbouring peasantry. The colliers who work in mines where the seam of coal is of sufficient thickness to permit the free use of their muscular actions, are erect, and of a good figure; while, in others, where the seam is of smaller dimensions, the miners have the spine permanently curved, and the legs frequently bowed; their complexion, when it can be seen in its own hue, is generally sallow and unhealthy, owing to the universal light by which they pursue their occupations; the eyelids often become swollen, and the eye assumes a diminutive appearance; the strong light of day occasions them to experience a painful sensation. The dress of the colliers is necessarily characteristic; their working clothes consist of a tunic or frock and trowsers of course flannel; their holiday clothes are generally of velveteen, decorated with a profusion of shining metal buttons, but they seem principally to pride themselves on their garters, which, being made of worsted, and very gay in colours, they tie on, so that a great part of the garter, as if by accident,

shows below the knee. They stand, sit, or crouch, for hours, often in the most irksome posture, undermining rocks of coal with a pickaxe. Not unfrequently are they crushed beneath the weight of the superincumbent mass, or suffocated by a deleterious exhalation, which is called the choke damp, and sometimes scorched by the dreadful explosion of hydrogen which is generated in the depth of the mine, a calamity from which the beautiful invention of Sir Humphrey Davy, the safety lamp, does not always preserve them. This evil, is not, it is said, attributable to any imperfection in the lamp itself, but to the astonishing recklessness of the men, who are with difficulty prevailed upon to observe the plainest and most simple directions even in matters of life and death.

The high cheek bones and the dialect of these people seem to argue them of northern descent; perhaps, in some remote age, they may have swarmed from the Northumbrian hive, to seize on the riches of the less adventurous or intelligent southerans. They have also manners and customs peculiar to themselves; one, in particular, is the non-observance, or, at least, very irregular observance of the transmission of the surname; it often happens that a son has a surname different from that of his father; sometimes a man will have two sets of names, as John Smith and Thomas Jones, and that without any intention of concealment, but, except on high occasions, as a marriage or christening, they rarely use any appellation except the cognomen, or nick name; this appears not to be given in derision, but a regular usage of the epithet by all persons connected with the subject, including his wife, children, himself and even all strangers.

The miners have very peculiar customs, and are fond of resorting to the public feasts, called, in the language of the district, *hoppings*, where they exhibit their buffoonery. The habit of excessive drinking, which formerly prevailed among them on holidays and market days, is fast wearing away, although they still resort to a public-house, to enjoy a social cup, and talk over the news of the day. They are constant attendants at Newcastle Races, where they revel in unbridled licence; they generally bet on the horses of the principal coal pro-

Quantity of coal produced in Staffordshire.

prietors. When the Earl of Durham was on the turf, they invariably vented curses and imprecations if the horse of a "Lambton" was not a winner. They are remarkably fond of music and dancing, and they have a series of songs written for them which they delight to sing and hear; many of these songs are highly poetical, and all generally full of wit and humour: they invariably commemorate the adventures of some pitman, or a description of their adventures while from home, either in London or elsewhere. To the pitman, 'canny' Newcastle, as they endearingly call it, is the centre of the world of importance and civilization, and their local trade they consider of the utmost consequence to the national prosperity. Dr. Plot, in his history of Staffordshire, written about 150 years since, speaking of the coal districts of ten miles round Wednesbury and Dudley, says there were in his day twelve or fifteen collieries in constant work, some of which produce 2,000 tons of coals yearly, others 3, 4, or 5,000 tons; this is the richest part of the Staffordshire coal field, and this county for wealth and importance ranks the fourth in the kingdom. The extent of its supplies of coal, even at that time, though coal was consumed for domestic purposes only, was great, but now, coal being used in many manufactures, the amount raised annually is not less than 60,000 tons; about one half of the collieries now worked were dormant in his time, owing most likely to the impediments which occurred in them, being of a nature which mechanical powers of machinery then employed could not overcome. In the same district are used, not reckoning that employed in manufactures which are extensively carried on in that quarter, and excluding the quantity consumed for domestic purposes, not less than 1,725,000 tons of coal annually, in rendering iron fit for the purposes which it has to pass through in its conversion into articles of utility. In eighteen hours, the South Helton Pit alone sends to bank as great a quantity of coal as would fill thirty of the Thames barges, or about 600 tons; while in Plot's day, the whole of the collieries situated in the most productive district, did not in the same time supply one third of this quantity; to account for this, it appears that almost all the work of the collieries were performed by human nature.

Previous to the introduction of Newcomen's steam engine, there existed no means of drawing out the water from the pits, above 40 or 50 yards deep; but now we have pits above 300 yards in depth, which are brought into a proper state for working, by means of further improvements in the application of steam. If the calling of a collier is now considered repulsive by many, it was much more so a century ago, when

Female labour in coal mines.

the most slavish labour of the mines was performed by men, and even women, instead of steam-engines. The lowest part of some of the mines was reached by inclined planes, along which women carried the coal from the depth of the pit to the surface in baskets, which they bore on their backs; the women employed in this degrading occupation were termed "bearers," and each carried from one to two hundred weight; even after the period when the coals were drawn up a perpendicular shaft by machinery, women were employed in carrying the coal from distant parts of the pit to the bottom of the shaft, and in some collieries 60,000 tons have annually been carried in this way.

Legislation on the subject of coal commenced about four hundred years ago, and as the use of that article gradually became more extensive, it was surrounded by many regulations, some of which were intended for the benefit of the consumer; one of the most important of which was, that all coals must be sold in London at a public market called the coal exchange. The following extract, from a pamphlet published two hundred years ago, shews the contrivances in these early days in order to enhance the price of coals:—"Though the fleete be an hundred saile, yet we meet them at Yarmouth, or before they come so farre, and suffer not above twenty or thirty to appear at a time, and then give out that the rest are suspected to be lost or taken. We tell the masters that the yards in London are full, that money is dead, and they must deliver or sell forthwith, or else their cargoes and charges will quickly eat out their gains, and so we get coals at our own price, and sell them as we list." Previous to 1831, the coal trade of the metropolis was under a series of close municipal regulations; many of which are now done away with; they were, however, insufficient to prevent the extensive prevalence of fraud, when an act was passed, which, by one of its clauses, simplified the previous cumbersome administration of the law, and placed the trade on a footing much more advantageous to the consumer—this beneficial change was produced by an enactment under which, within twenty-five miles of London, all coal must be sold by weight and not by measure, particularly the heap measure. The tricks which were practiced in this trade, in ancient times, could not be practised now, according as the supply is so much greater, and our

Relative proportions between English and French mines.

information of events so correct. In the old pamphlet alluded to, it says:—"First I vent my coal out to women and poor folks, that indeed there was a fleete come of sixty five or seventy saile, almost as far as Harwich, but there arose a violent storme, so that most of the fleete was shipwrecked, and the rest rendered unserviceable to put to sea, till next Easter at least: at this report, O how the poor shrug up their shoulders, and pawn their pewter dishes and brasses, and any goods, at the brokers, to get some coals in at any rate, and then we vend our worst coals, or mix them with the good ones."

Our mining interest, if not the greatest, was undoubtedly the most important source of our wealth. In 1832, the value of the coal mines in France was at least £4,230,000; in 1836, £6,169,138; and in 1841, reached £7,134,243—including their duty—the number employed about 22,000; the average quantity of coal raised by each person employed was 116 tons—producing 3,410,200 tons of coal. The number of persons employed in England is 118,233, (STACKMAN calculates them at 150,000,) raising 253 tons each per annum, averaging the quantity raised in Great Britain above 34,000,000 tons, which, at 10s. per ton, may be valued at £17,000,000; this amount, if valued according to the price in France, would be from £36,000,000 to £40,000,000.

The iron works and mines employed 43,775 in 1836, and 47,830 in 1841, making 1,060,875 tons of iron; the export of 1841 was 360,875 tons. Great Britain makes more than four tons of pig iron to one made in France, with less labour and expence. Each person in France produces eight tons per man; while in this country, with our improved machinery, they produce more than thirty five tons per man. The value of iron and steel in 1841 amounted to £4,975,425, and in 1841 to £5,671,582; the value of British metals exported to France in 1842 was £1,048,950, and of coals £73,278—these metals being principally 112 tons copper, 638 tons of lead, 1978 manganese, antimony, 100 tons, which produce 73,680 ounces of silver. It is observed by G. R. PORTER, "that the workmen of France never combine in strikes, but they are at least as backward in education as the English labourers." The cost of mining coal near Leeds is 4s. per ton; in Glamorganshire about 3s. 6d. In the lead mines in various parts of Britain, particularly Derbyshire, there appears undoubted evidence that they were worked in the times of the Romans. The inscription on the three pigs or masses of lead found in that vicinity (now in the British museum) one of which has the name of the Emperor Domitian, a second that of the Emperor Hadrean, the third the name of a private individual—these pigs or oblong masses, somewhat resemble the blocks of tin that are usually coined weighing about 154lbs. are 23 inches in length on the bottom, and 20 on the upper surface, and 4 inches in depth. They were discovered upon Hayshaw Moor a foot and a half beneath the surface in 1734. The inscription confirms the testimony of PLINY, who says "that in Britain, lead is found near the surface of the earth in such abundance, that a law is made to limit the quantity which shall be taken, and it was there-

fore necessary in the royal mines to mark the lead with the Emperor's name." This country, treated as a distinct colony, and whose fierce and barbarous inhabitants were condemned to toil in what they deemed most degrading and ignoble occupations, is now the governing centre and head of a greater empire than Rome ever saw, and claims colonies yielding resources, the existence of which were alike unknown to her. Could TACITUS, when writing his *History of the affairs of Britain*, only look down and contemplate this isle, as it now is, it would appear to him a "scene surpassing fable, and yet true." It is stated that the Roman method of cleaning the lead ore was the same as that pursued in this country till very recent times. The lead of Derbyshire was originally smelted by wood fires on hills in the open air; this inconvenient mode was succeeded by what were called hearth furnaces. The last hearth furnace was demolished about the year 1780, it being succeeded by the cupola furnace.

The tools with which the miners work in lead mines are so hardened, that they will make an impression on the head of an anvil, and yet they will sometimes be broken in working the mines in less than an hour's use. When the workmen meet with a black stone, they consider it a very bad omen, as it has been perceived by them as leading to a hard rock, which is likely to stop their further progress. The fine lead mines in the Mendip Hills, in Somersetshire, afford vast quantities of this very useful metal; the ore in these mines sometimes runs in veins, as the tin ore does in the Cornish mines, sometimes it is dispersed in banks, and it very frequently lies between rocks. A beautiful spar often adheres to the ore, which spar is quite white, transparent, and brittle as glass. In the lead and copper mines are frequently found a number of semi-metals, as speltre, bismuth, zinc, antimony, lapis, calaminaris and cobalt: with the asbestos stone which is so fibrous, that linen has been manufactured from it.

No. 8.

CHAP. XVI.

THE BRITISH FISHERIES.

The value of the fisheries—Number of men employed—The pilchard fishery—The herring fishery—Quantity caught on the coast of Norfolk—The Dutch fishery—Incorporated company for the encouragement of British fisheries—Their objects—The bounty system—Its futility—Fish as an article of food, not much used, only by the rich and poor generally.

To form a correct view of the value of the British fisheries on the national industry, we have only to reflect that it gives employment to 220,000 men and boys on the sea, and, at least, to 100,000 persons on shore. The various opinions of different writers, as to the value of their produce are very great. M'Cullock doubts if it reaches £4,000,000; the writers of the articles *Fisheries*, in the *Encyclopædia Britannica*, estimates it at £12,000,000; Stackman calculates it at £5,000,000. However, there is no doubt but on a review of the subject, the annual value of our fisheries is enormous, as they form the principal subsistence of a large portion of our population. The pilchard fishery is principally carried on off the coast of Cornwall. It gives employment to above 1000 boats, 3,500 men and boys at sea, and 5,000 men and women on shore, and they catch, on an average, annually, 30,000 hhds., of the value of £52,000.*

* When the fishery was at its greatest prosperity, in 1818, the custom among the fishermen, on returning with a large catch of fish, was to drink the Pope's health, foolishly imagining that the overthrow of a papal power would diminish their demand.

Some years, 40,000 or 50,000 have been taken: the greatest part of which is shipped for Italy, for the supply of the Italian states during Lent.

The quantity of herrings caught on the coast of Scotland and Yarmouth, during the season, besides what is consumed and cured by the inhabitants for their own consumption, and for exportation, to various ports, in 1840, was 543,945 barrels; in 1811, it was only 91,287. The fishery on the coast of Yarmouth employed only 94 vessels in the year 1752, whereas, in 1760, it engaged 205, and gave employment to about 6,000 men, women, boys and girls; besides 40 vessels from Folkestone, Hastings, &c., which have now deserted it entirely, for above twenty years.

In 1760, the annual quantity captured on the Norfolk coast, was about 47,000 barrels, of which, alone, 30,000 were exported; in addition to this, the Yarmouth people used to join the Shetland fishermen, with 200 vessels, of from 40 to 60 tons burthen, to fish in the neighbourhood of Ireland, where cod, most saleable in the Spanish and Italian markets was caught. This traffic has been discontinued by the operation of the salt laws; and since the taking off the salt duty, it has not been resumed. In 1751, the Scotch employed only two vessels, measuring 148 tons, and carrying thirty-three men and boys, and the quantity of herrings taken was only 213 barrels. In 1760, the number of vessels increased to 13, employing 130 men, and the quantity taken was 3089 barrels. This fishery was much encouraged by the

bounty given by government for the export of herrings, till it increased to 82,328 barrels, when, being discontinued, the fishery declined for a few years; but in 1776, the number of vessels increased again to 294, and the quantity of herrings taken was 51,863 barrels; it again declined after the commencement of the American war, from the rise in prices of naval stores, salt, and seamen's wages. With respect to the quantity of herrings, as well as pilchards, caught the numbers above-mentioned were only the barrels exported, or sent coastwise, or those on which the bounty was paid, being the first catches of the season. Those caught subsequently, being often greater in quantity, were sold fresh or slightly salted by the country people. The number consumed is said to have been exceedingly great, and sold at a low price, they being almost the only food of the inhabitants of some of the highland clans.

From early history, it appears that herrings taken on all the coast were the principal food of the poorer inhabitants, the usual allowance for breakfast-and dinner being mostly two salt herrings, and oatmeal porridge, with coarse rye bread; and before the introduction of tea and coffee, red herrings appear to have been one of the principal items of the breakfast table of the gentry, in addition to brown bread, ale and butter. It may be difficult to trace the history of the herring fishery from an earlier period than the sixteenth century, but it may be conceived as constantly growing into importance in proportion as men devoted themselves to settled pursuits, and left off piracy by sea, and marauding by land. William the Conqueror granted a charter, in the eleventh century, to vessels from Dieppe, to fish for herrings on the coast of England, which they brought home salted in barrels. In 1205, the Dutch obtained permission from Edward I. to fish at Yarmouth. The Dutch are indebted for their superior method of preparing herrings to William Bruckel, a native of Flanders, since which the Dutch have been enabled to introduce their herrings as an article of foreign commerce. The importance of this trade originated in the intelligent manner

The Dutch herring fishery.

in which a poor fisherman applied his talents. In 1536, Charles V., accompanied by the Queen of Hungary, paid a visit to the tomb of Brukels: thus offering a noble tribute of respect to a man who had so essentially benefited his species. The Dutch herrings soon became highly esteemed in all European markets, and a great source of profit to those engaged in the trade; there is a popular saying in Holland that the foundation of Amsterdam is laid on herrings' bones, alluding to the old staple trade of the country in the same sense, that Old London bridge was said to be built upon woolpacks. The fishery was considered as the right arm of the republic, and under the stadtholders it was always entitled the "grand fishery;" public prayers were occasionally offered for its prosperity. In 1560, a thousand Dutch vessels were directly engaged in the herring fishery; in 1610, there were fifteen hundred; and ten years after, two thousand vessels were employed. When this fishery was at the height of its prosperity, the number of vessels engaged in importing salt, conveying the fish to foreign markets, and supplying those engaged in the fishery, was 6,400; and the mariners and fishermen, 112,000. The first cause of its decline lay in the wars of Holland, during the latter part of the eighteenth century. The English vessels cruising continually in the North Sea captured the Dutch fishing vessels, and during the wars between this country and France, Holland shared all the fortunes of France, and had to submit to the consequence of such an alliance; in the mean time, the English used every encouragement to gain the fishery, granting bounties to fishing vessels. In 1677, the Duke of York and others were incorporated into a body, entitled "The Company of the Royal Fishery of England;" this company expended its capital in fitting out fishing busses, built in Holland and manned with Dutchmen, which were seized by the French. Some years after, a proposal was made to raise £180,000, for establishing a fishing company, which was effected. In 1749, the subject for establishing the British fisheries on a large scale was recommended in a speech from the throne, on the opening of Parliament, and a bill was prepared by Gen. Oglethorpe, which received the royal assent in 1750; the ardour with which the news of this bill's passing was received by the public was very fervent, as the greatest prosperity was expected from the measure, and Admiral Vernon was instructed to take a voyage to Holland on purpose to make himself master of the manner in which the Dutch carried on their fisheries, and cured their fish. The sum of £500,000 was subscribed, and a body was incorporated under the title of the "Society for the true British fisheries;" a bounty of 30s. per ton was allowed, and paid out of the customs, to all vessels from twenty to twenty-eight tons burthen, which should be built for and employed in this trade. Fishing chambers were established in some of the outposts by the London company, who subscribed £10,000 for the purpose; the nets were made at Poplar after the Dutch pattern, and for some time, more than two thousand persons were employed in this occupation. In 1759, the bounty was increased to 50s. per ton. In a few years, not a vestige

Objects contemplated by the herring company.

remained to indicate that such a society had existed—its failure was complete. In 1786, a new corporation was established, which was entitled "The British Society for establishing the fisheries, and improving the coasts of the kingdom." In 1808, commissioners were appointed for superintending the British fisheries, and distributing the bounties; these were directed to prepare every year, a report of their success. The abolition of the bounty took place in 1830. It may seem extraordinary, that in spite of the efforts which were made to support the British fisheries, the best intentioned plans failed; the bounty system, which was at one period insisted upon as its main dependance for success, has been relinquished, and the prosperity or decline of the fishery now depends on the exertions of those engaged therein.

The objects proposed by the plans for the encouragement of fisheries, were:—First, the creation of a nursery for seamen, and the increase of our maritime power, which was highly popular; secondly, the increase of the supply of food, fish constituting in the fifteenth century, half the food of the people. When the consumption of fish on Lent days was no longer considered a religious duty, a great diminution in the demand for this species of food took place; the decay of the fishing towns was the natural consequence, and it was feared this would lead to a diminution of our naval power, and hence the successive attempts to stimulate the prosperity of the fisheries; but the manufacturing turn that pressed on the industry of the nation in the reign of James I. occasioned Davenant to remark, in 1690, that "for the last hundred years, wealth did flow in so fast upon us, that we had no occasion to be more industrious," and he gives this as an excuse why we had not enriched ourselves with the treasures of the seas: the true meaning of his remark appears to be, that we are already so profitably employed that it would better

answer our purpose to buy fish caught by our neighbours the Dutch, than to be at the cost and trouble of fitting out vessels to catch them ourselves. At this time, all our exports together did not amount to £20,000,000; the quantity of our surplus manufacturing produce was very trifling; the cotton manufacture was unknown, and it was not imagined that in the present day the exports of cotton goods alone would nearly double the total value of all kinds at that period. The sea thus came to be regarded as a mine of wealth, because all the grand economic means of creating riches, arising from improved machinery and a more perfect application of capital and labour, remained comparatively unknown, or were not extensively employed; it was therefore determined to embark in the fisheries, and to realize, if possible, the golden visions which had enchanted all classes of the people, from the example of the Dutch. The encouragement given to this traffic by means of bounties, was an error that appeared at first difficult to overcome. Smith, in his *Wealth of Nations*, plainly elucidates this, when he says "It is not to the success and diligence of the fishery, but to the burthen of the ship; for it is too common for vessels to be fitted out for the catching of the bounty, and not for catching the fish. In the year 1759, when the bounty was at £2 10s. per ton, the whole buss fishery of Scotland brought in only four barrels of "sea sticks;"* in that year, each barrel cost government, in bounties

* The nick name that bounty barrels of herrings were termed.

alone, £113 15s., and each barrel of merchantable herrings, £159 7s. 6d. The buss fishery ruined the boat fishery on which there was no bounty, and thus the inhabitants on the coasts were deprived of their usual abundance of cheap food, as all fresh herrings were purchased for curing. So far was the fishery from being a source of profit to parties engaged in it, that the bounty had the effect of encouraging rash undertakings in a business which parties did not understand, and they consequently lost by their own negligence more than compensated all that they could gain by the utmost liberality of the government.

We find, from statements by other writers, that one principal object of the revival of the fisheries was not gained, as the individuals who engaged for a few weeks in the fishery, for the purpose of obtaining the bounty, left it as soon as the season was over, and the number of those intruders injured those who had really been brought up to the sea, and depended on the sale of fish for a support. The attempt to render fish a common article of diet, though there is no doubt of the increasing consumption, has entirely failed in this country; although the average price of all the fish brought to Billingsgate market does not exceed 2d. or 2½d. per lb., yet meat which is more than double the price is preferred. Fish is chiefly consumed by those who are in extreme poverty, and by the rich, and does not enter largely into the common diet of the middle classes, who are in a condition to obtain more expensive food, which they prefer. The poor of Ireland and the negro slaves of the West Indies are the chief consumers of white or salted herrings, and those are now used by them rather as a condiment to give a relish to vegetables, which would otherwise be tasteless. The British herring fishery may be considered, on the whole, as in a tolerable satisfactory state; the withdrawal of the bounty, so far from having injured it, has had a contrary effect. The annual report of the commissioners says, that the fishermen have been enabled, by the produce of their industry, to replace their small boats by new ones of larger dimensions, and to provide themselves with fishing materials of greater value. The number of boats and of fishermen has been greatly increased, while this important source of employment has been opened to thousands of poor people, who now annually resort to the coast during the continuance of the fishing season, and these earn a decent livelihood in the operation of curing and packing. Dwelling-houses, of a superior construction, for curing

and storing the herrings, are erected at almost every station along the coast; while the demand for home wood, (that is, British fir) for the manufacture of barrels, affords a source of profit and employment to numbers of people in the most inland parts of the country.

The increase of the herring fishery is chiefly in Scotland, where it was for many years confined to the coasts of Caithness and Sutherland; but since 1815, it has extended to Bamffshire, Aberdeenshire, Morayshire, and Ross-shire. The herrings on this part of the coast are prepared for the West Indies, Germany, and the Irish markets. When De Witt pointed out to his countrymen this source of riches, he says, "the manufacturers of England live chiefly upon herrings;* manufacturers employ the merchants, merchants promote commerce, and commerce and fisheries are the source of navigation and naval power, which are the principal supports of a maritime state." Sir Walter Raleigh estimated the annual value of the Dutch fisheries, in his day, at ten millions; but this calculation is certainly much too high; it was, however, believed, at the time, to be correct, and it became a source of regret and irritation to the English nation, that this harvest should be on its coasts, while those who had a more peculiar right to derive a profit from it, reaped but few advantages. Not only was Holland destitute of many of the productions which must necessarily be obtained from foreign commerce, but her

* Queen Elizabeth issued a proclamation to encourage the fisheries and diminish the too rapid consumption of meat, and, at the same time, to avoid the imputation of leaning to Catholicism. She threatened, with her severe displeasure, all who should attribute her injunctions to anything but politico-economical motives.

coasts did not abound with the fish from which the country derived its chief wealth. From Shetland to the coast of Sussex, the British shores were covered with Dutch herring-busses, which carried on the fishery at a distance of from 50 to 550 leagues from their own ports. Until the reign of James I., the Dutch were not permitted to fish on the English coast without license; but afterwards, so far from asking leave, they were frequently in the habit of interfering with the English fishermen, and would not allow them to pursue their employment without molestation.

The extraordinary development of industry in Holland may be regarded as a striking proof of the influence exercised by position and local circumstances; had the soil yielded an abundant increase, the inhabitants would never have sought the means of subsistence amidst the dangers of the seas. The remarkable history of the fisheries of England, where herrings are seen in periodical migration, appears peculiarly the advantages and property of Britain, though there is some difference of opinion whether these immense shoals of fish come from the arctic circle, or are nurtured in the deep seas, and return to the coast for food and spawning; yet the great mass begin to appear off the Shetland isles in April and May. In June, the grand shoal is marked by certain signs—the number of birds, such as gannets and others, that follow to prey upon them—the main body of this shoal is divided into distinct columns of five or six miles in length and three or four in breadth, and

their depth is supposed to be many fathoms (perhaps from ten to twenty), and these drive the waters before them with a kind of rippling; sometimes they sink for the space of ten or fifteen minutes, then rise again to the surface, and, in bright weather, reflect a variety of splendid colours. The first check this immense army meets with in its course southward, is the Shetland islands, which divides it into two parts—one wing taking the east, and the other the western coasts of Great Britain; and then they fill every bay and creek with their numbers. Some pass on towards Yarmouth, the great ancient mart of herrings, then through the British channel, and southward till they disappear. Those that take the west, pass the Hebrides, where is the great stationary fishery, then they proceed towards the north of Ireland, where they meet with another interruption, and are obliged to make a second division; one takes the western side, and is scarcely perceived, being soon lost in the immensity of the Atlantic; but the other, which passes the Irish sea, rejoices and feeds the inhabitants of most of the coasts that border on it. Though some writers have stated that the time of the annual visitations of the herrings and pilchards is adjusted with exact precision, yet observations and experience prove, though they always come to some place or other, the exact time and place cannot be specified as a certainty; at one time they frequent a particular part of the coast for several years, and afterwards suddenly abandon it; this change is, doubtless, occasioned by

circumstances which it is in their nature to obey, and is impossible for us to understand.*

In the time of Charles I. the Long island, one of the western isles of Scotland, was a favourite resort of herrings, and buildings were erected for the purpose of establishing a fishery, but it was abandoned in consequence of the fish ceasing to frequent that part of the coast. M'Culloch says, "That vulgar philosophy is never satisfied unless it can find a cause for everything." This disappearance of the herring has been attributed to the manufacture of kelp; but kelp was not introduced for many years after the herrings had left the Long Island, as well as many of the coasts they had frequented in that neighbourhood: it is also a popular belief that naval engagements, or even firing of guns, cause them to change their haunts—thus their desertion of the coasts of Sweden and Norway was attributed to the battle of Copenhagen; and now, when guns are silent, the steam-boats are a "sufficient reason." The one reason is as valid as the other; it is a chance if there has been a gun fired in the Western isles since the days of Cromwell, and they have shifted their quarters within that period many times. They have left Loch Hourn and Loch Torridon, where steam-boats have never yet smoked; and since the steam-boats have been propelled to Inverary, they have thought fit to prefer Loch Fyne to all the western bays. But theories like these have at least the merit of antiquity; long before the days of gunpowder, the ancient Highlanders thought that the fish deserted those coasts where blood had been shed. The quantity of netting used in the herring fishery exceeds 1,000,000 square yards, and when this fishery terminates, which generally lasts three or four months, most of the fishermen and others engaged in this fishery are occupied in catching cod and other fish. Before we quit the article of fisheries, it may be well to take a glance at the sprat fishery, not altogether on account of the immense shoals that frequent our coast, just as the herrings have disappeared, for although they are too small to be cured on the same extensive scale as the herrings and the pilchard, they are pickled in various ways, sometimes in a manner to resemble anchovies, to which, however, they are greatly inferior, owing to the insoluble nature of the bones. Besides their use as food, the sprat has, within the last few years, been extensively employed as a manure, and under some judicious regulations, the demand for this purpose might probably benefit the fishermen, without diminishing to an injurious extent the quantity required for consumption as food. The quantity of sprats used as a manure now amounts to several thousand tons per annum; the price varies from ten-pence to eighteen-pence per bushel. In 1829, large quantities were sold at 6d. per bushel; about forty bushels are applied per acre. Barge-loads containing 1,500 bushels were

* The remarks about the migration of herrings are also applicable to the pilchard, the salmon, and sprat.

sent up the Medway to Maidstone, in 1829, and the hop-grounds were abundantly manured. YOUNG records the experiment, in which herrings spread on a field, and ploughed in for wheat produced so rank a crop that it was entirely laid before harvest; the refuse of pilchards is used in Cornwall, and throughout the country where they can be procured; the effects are perceived for several years. In the fens of Lincolnshire, Cambridgeshire, and Norfolk, sprats and sticklebacks are caught in the shallow waters in such quantities that they are eagerly sought for. Lord Somerville used the blubber of these fish, mixed with earth, with great success in Surrey. This branch of fishing employs from four to five hundred boats, engaged in stow boating on the Kentish coast alone: which remain upon the fishing ground for a week together, not for the purpose of catching sprats for the supply of food to the market, but only to obtain dead fish for the purpose of manuring the land.

For many years, the multitude of herrings on the Swedish coast was so great, that after their consumption as food and for exportation, many millions were boiled for oil. About 16,000 barrels of herring oil were made in the year 1781, the greater part of which was sent to Holland and Spain. The next year, no herrings appeared upon the coast of Sweden; but on the shores of Ireland and Scotland, the abundance was greater than usual. On the Irish coast, the fishermen loaded their boats with a single haul of a net; and after having taken as many as could be cured, they sold their produce in the month of July for 10d. per thousand; and a week or two later, 4d. or 6d. would buy as many as a horse could carry; and quantities were boiled down for oil, and the refuse thrown away or applied for manure.

The mackarel fishery is, perhaps, the liveliest, if not the most interesting of any which is carried on in the British seas; the places of rendezvous are Yarmouth, Harwich, Dover, Folkestown, and Hastings; the boats and men from these localities work down the coast as far as the Scilly Isles, as the fish generally appear in that neighbourhood first, then to Penzance and Plymouth, where sixty boats, and about six hundred men, have for the last three years been stationed during the winter, it having been discovered that, in the deep water off the Eddystone, they can be taken as early as at the Scilly Isles. The value of the catch is so very various, that it may be stated

almost like gambling; instances of a boat-load at Billingsgate being sold for forty guineas per hundred —seven shillings each; the next boat produced but thirteen guineas per hundred, in 1807. In 1808, at Dover, mackarel were sold sixty for one shilling; in 1834, they were sold three for a shilling; sixteen boats off Lowestoffe, on the 30th June, 1830, made of mackarel £5,252; at Plymouth, at the height of the season, mackarel generally sell for 7s. per hundred, which are usually packed in baskets for the London market, and sent by steamers. The great advantage of the early and winter fisheries is, that it employs a number of men who would otherwise find it difficult to obtain a living. In early times, in rough or stormy weather, hardly a boat or a man would venture out, while now, in the winter, at the least appearance of success, they immediately put to sea. A petition from the owners and masters of vessels employed in the mackarel fishery at Brighton, has been presented to Parliament, praying that protection may be afforded them from the injury they are constantly sustaining from the French trawl boats; the petitioners state that they have vested about £10,000 in procuring twenty three mackarel boats, which are furnished with suitable nets, and extend a mile and a-half in length, and that they are frequently cut asunder, and injured by these French boats.

CHAP. XVII.

THE IMPROVEMENT IN ROADS.

The roads of the Romans—Scottish roads—Their effect in civilizing the Highlanders—Ancient methods of conveying mail-bags—Improvements in agriculture by means of roads—The introduction of turnpike-gates—Canals—Their utility—Duke of Bridgewater's canal—Brindley, the engineer—His works—The improvements of the Scottish roads, by Telford—Steam-boats—Their introduction, progress, utility, number, and probable effects—Advantages to the community.

The improvement in the various grades of society may be readily traced, not only in the methods which have been adopted in the cultivation of the various manufactures, but likewise in the facility which is given to communication, and in the transmission of those articles by means of the alterations in our roads. For no people without internal communication can become at once a great commercial, manufacturing, or agricultural nation. The Romans, in early days, set the example of forming roads as means of intercourse, the remains of which are in existence in some parts of the country to the present day; and the works conducted by the parliamentary commissioners from the year 1803, when they commenced their operation, have done more to advance the civilization of the Highlands, than all the attempts of government for that purpose in the course of the preceding century, and has been the means of advancing the country at least an hundred years. It

Coaches first introduced into Scotland.

was not until 1811, that coaches were regularly established in the very neighbourhood of the Highlands, which were objects of wonder and veneration. In 1715, the first coach or chariot seen at Inverness is said to have been brought by the Earl of Seaford. In 1760, the first post chaise appeared in Inverness, and was for a considerable time the only four wheel carriage in the district. There are in that town, at present, four carriage manufactories; before this time there were no inns in the Highlands. The mail bags used to be carried on the backs of pedestrians, but are now sent to all the considerable towns in coaches, and are brought regularly three or four times a week, when they used to be conveyed only once. Agriculture has received a remarkable impulse from these improvements; the value of property has greatly increased; trade has been promoted; and the general condition of the poorest of the inhabitants has been ameliorated by numerous accommodations and comforts, which were formerly entirely out of their reach. If the same policy had been extended to the West of Ireland, how much more would that beautiful country have been improved, than have the barren and dreary mountains of the Highlands.

If we compare the present state of our roads, canals, and railways, with the miserable means of transit a few centuries ago, which our ancestors experienced when they had to undertake a journey—forcing their way through deep miry lanes, fording swollen rivers, obliged to halt for days together until the waters were abated, and then crawling along at a pace of two or three miles an hour, in constant fear of being set fast in a quagmire, of being overturned, or swept away by a sudden inundation. The Romans formed several excellent roads in Britain, as they did in every country which was subject to them; but the

London streets at the time of the conquest.

age of confusion and misery that followed their departure from the island, obliterated them, with nearly every other vestige of their domination. For a long period, instead of our roads being improved, they continued to get more dilapidated. About the time of the Norman conquest, the principal streets of London appear to have been little better than ditches or marshes; it is related that in 1090, on occasion of a great storm of wind blowing off the roof of St. Mary-le-Bow church, in Cheapside, four of the rafters, each twenty feet long, were pitched so deep in the street that scarcely four feet remained above ground; Holborn was not paved until the fifteenth century. In 1417, Henry V. ordered two vessels, each of twenty tons burthen, to be employed at his expense in bringing stones for this purpose, because, it is stated, the highways were so deep and muddy, that many perils and hazards were thereby occasioned, both to the king's carriages passing that way, and to those of his subjects. The western end of Holborn appears not to have been paved until 1451, in which year Gray's Inn-lane, Chancery-lane, and other streets, now in the heart of the city, are described as "very foul, and full of pits and sloughs, very dangerous and noisome as well for the king's subjects on horseback, as on foot, and with carriages." As for the country roads, no attention was paid to them until towards the middle of the sixteenth century. The first general act for repairing the roads was passed in 1555; it imposed a duty on parishes, for keeping the roads in repair. The first toll-bar was erected in 1663, on the road leading through Hertfordshire, which was become so bad by means of the great loads of barley, malt, &c., brought weekly to Ware in waggons and carts, and from thence conveyed by water to London; that three toll-gates were erected nearer London, and the people were so prejudiced against the innovation, that they rose in a mob and destroyed them. The magistrates of the city of London had great difficulty in establishing a toll-bar at Marylebone, the house and gate being more than once destroyed, and the toll-collector murdered; a party of military was at last stationed there to prevent the demolition of the gate; the excuse was, that the roads were not repaired with the money collected. The intercourse between the two capitals (London and Edinburgh) was so little, that they were considered as foreign parts. In 1635, a proclamation was issued by Charles I. to the effect that "Whereas to this time there hath been no certain intercourse between England and Scotland, his Majesty now commands his postmaster of England for foreign parts, to settle a running post or two to run night and day, between Edinburgh and London." In the year 1763, the London coach set off from Edinburgh only once a month, and was from twelve to sixteen days on the road, a journey to and from Edinburgh was, in those days, a doubtful and hazardous expedition. The change that has since taken place is immense, and the danger of the person who undertakes it, is scarcely any more than when he walks along the street in which he lives. This intercourse and roads have done more than the compact of 1707, and is the true union of the kingdoms.

No. 9.

Roads in the Highlands.

Such indeed was the insecurity of a great part of Scotland, and the poverty of the people, particularly in the spring of the year, that their cattle were often reduced to a state of starvation, which was only remedied by the thatch of their miserable dwellings. No towns, properly so called, were to be found on the Highlands; the houses, which were generally scattered in a glen or strath, were built of sod or turf, sometimes of clay, and occasionally of stones without lime. With the exception of the target, which was used only in battle, a Highlander was at all times completely armed, he even went to church in armour, so that his weapons became as familiar to him as his own limbs. These people, until the year 1745, were as completely strangers to the English as the inhabitants of one of the inland cities of Africa. In London, even so late as 1730, the streets were, for the most part unpaved, each tradesman paved the entrance to his shop in his own fashion; what was in those days called the pavement, was the edge of the street railed off by posts, for the protection of foot passengers. But the natural evils of rain, mud, and dust, were not the worst to be encountered in walking about the streets of London, and the highways in the neighbourhood. Pickpockets and highway-robbers had become exceedingly numerous; the squares of London were infested with numbers of beggars, who exhibited the most disgusting maladies, in a tone of clamorous supplication, and frequently these wretches were thieves at night, and then the cripple who had

begged all day converted his crutch into a truncheon at night, with which he knocked his victims on the head.

An instance of the insecurity of the roads, even in the memory of the late J. WALKER, Esq., one of the police magistrates, is thus mentioned by him :—

"I have been in the habit, many years, of going about all parts of the town and its environs, at all hours, without any precaution, and I never experienced, on any occasion, the slightest molestation; and I scarcely ever met in society, any one whose own actual experience was different: but it was not so formerly, even in the memory of many besides myself. At Kensington, on Sunday evenings, a bell used to be rung at intervals, to muster the people returning to town; as soon as a band was assembled sufficiently numerous to ensure mutual protection, it set off—and so on till all had passed."

To cross Hounslow Heath, or Finchly Common, now both enclosed, after sun-set, was an expedition of great danger; those who ventured were always well armed, and some had ball-proof carriages. George IV. and the late Duke of York, when very young men, were stopped and robbed one night in a hackney coach on Hayhill, Berkley-square. Coaches were introduced into England in 1580, and by the commencement of the next century were become common in London; but in 1629, Charles I. issued a proclamation, commanding that no common carrier, or other person whatsoever, should travel with any wain, cart, or carriage, with more than two wheels, nor with a load of above 20 cwt., for fear of injuring the roads. In 1703, Prince George of Denmark, having, in December, to make a journey from Wigan to Petworth, to meet the Spanish Ambassador, was

fourteen hours in accomplishing that distance of forty miles, in his coach,—the last nine having taken six hours to go over them. "We did not get out of the carriages," says the narrator, one of the prince's attendants, "save when we were overturned or stuck fast in the mire. We were thrown but once in going, as our coach, which was the leading one, and his highness's body coach; and if the nimble boors of Sussex had not frequently poised or supported it with their shoulders, the rest of our company would have suffered much more." It is not forty years since it took twelve hours to go from Plymouth to Exeter, in the public diligences. As a matter of history, we look back to the time when it took a week to perform the journey from Plymouth to London. There is now an advertisement, hanging as a curiosity in the coffee-room of the Black Swan inn, at York, (framed and glazed) as follows :—

"York Four Days' Stage Coach.

"Begins on Fryday the 12 of August 1706. all that are desirous to pass from London to York or from York to London or any other place on the road, let them repair to the Black Swan in Holborn in London and then to the Black Swan in Coney Street in York. At both which places they may be received in a stage coach every Monday, Wednesday, and Fryday, which performs the whole journey in four days (if God permit) and sits forth at five in the morning and returns from York to Stamford in two days and from Stamford by Huntington to London in two days more, and the like stages on their return allowing each passenger 14lbs. weight and all above, 3d per pound.

Performed by { "Benyamin Kingman, "Henry Harrison, "Walter Baynes."

Coaches in early times had no springs, and the state of the roads, in every part of the kingdom, as

The effects of good roads.

well as the streets of the towns, must have made riding in them any thing but easy: it was also the great complaint of the time that carriages did so much damage to the road, that it was unsafe for gentlemen on horseback, or foot-passengers, to travel. Even so late as *Young's Itinerant,* he states, "many of the turnpike-roads (which he names) were so deep in ruts, that his carriage was often up to the nave in mud, particularly in Essex; and the worst roads were in Gloucestershire."

Young in his tour of 1770, vol. 4, says the roads are so bad in Essex, that it is a thousand to one, but a traveller is in danger of breaking down or breaking his neck, he says he actually measured one rut four feet deep and floating with mud, from a wet summer, what therefore must it have been in winter? He actually passed three carts broken down within eighteen miles, in Gloucester. This writer mentions the mode of mending the roads, which was merely by throwing large stones carelessly upon them, without any arrangement.

The effect of good roads on civilization and industry was very observable in the labours of Oberlin, in Switzerland: he says there were no roads in the Bau de la Roche, but a few passes in the mountains, which were constantly broken up by the torrents, or obstructed by the loosened earth which fell from the overhanging rocks. The river Bruche, which flows through the canton had no bridge, but one of stepping stones. He assembled the people, explained his objects as the only means of permanent improvement, and proposed that they should blast the rocks to make a wall, to support the road on the side of the river, over which a bridge should be made. The peasants, one and all, declared the thing impossible, and every

one excused himself from engaging in such an unreasonable scheme. Oberlin exhorted and reasoned with them, appealed to them as husbands and fathers, but all in vain; he at last threw a pickaxe on his shoulder, and went to work himself, assisted only by a trusty servant; his example, however, soon drew the support of fellow labourers; his heart was in the work, no difficulties could stop him; he devoted his own little property to the undertaking; he raised subscriptions amongst his old friends; tools were brought for all who were willing to use them. In three years, the road was finished, and the bridge was built. Agriculture began to flourish on the sterile soil; the trees flourished, to the astonishment of the peasants, in Oberlin's garden; he explained his system, and gave them plants out of his nursery; in a few years, the bare and desolate cottages were surrounded by smiling orchards; the potatoes of the canton, the chief food of the people, had so degenerated, that the fields yielded the most scanty produce. The peasants maintained that the ground was sterile. Oberlin procured a new sort of potatoes, and like all agricultural improvers, he taught the people the value of manure, and the best modes of reducing every substance into useful compact; his maxim was "let nothing be lost." The soil of the mountains was now found to be peculiarly favourable to the cultivation of the root, abundance was the consequence. He also introduced the culture of Dutch clover, and flax, and at length overcame the most obstinate pre-

judice in converting unprofitable pasture into arable land. This venerable examplar was only reviled and abused, at the beginning of his career. The ignorant populace had agreed to waylay and beat him, and another to duck him in a cistern. They were described to be the most wretched and rude of all the inhabitants in the surrounding country, cut off by their peculiar dialect, as well as by the inaccessibility of their situation from the rest of mankind. The husbandmen were destitute of the commonest implements, and had no means of procuring them; yet, after some time, they adopted his plans one after another, and the result well re-paid their labour, for instead of wretchedness and a barren soil, this canton became luxuriant and fruitful, which effects may be readily traced to the modes he had taught of cutting, and keeping good roads in a constant state of perfection.

Stage coaches appear to have begun to be established on the great roads towards the end of the reign of Charles I., and in the reign of Charles II.; they became so numerous, that the tradesmen in and near London took it into their heads to consider the existence of such vehicles a public evil, and in a spirit very much like that which dictated a late petition against cabs and omnibuses, petitioned the king to put an end to the stage coach nuisance. The principal objections started were, that they injured the profits and rents of inns; that the charge of consumption of provisions for man and beast had been lowered; the rents of lands were also brought down by means of stage coaches; again, it is stated that stage horses eat three times as much as any saddle horse that travels, and besides this, that saddle horses had diminished in consequence. It was also laying aside the ancient way of hospitality and good house-keeping, and the breed of horses had deteriorated. Against these arguments, the hackney coach proprietors petitioned in favour, denying all these statements, and contended that the breed was improved; though they allowed that the stage coaches killed more horses in one year, than those who travel upon saddle horses do in three, and so occasions more vent for breeding thereby."

Introduction of turnpike-gates.

Lady Springet, (Mary Pennington) on going to see her husband, at the siege of Lewis, where he was dangerously ill, travelled in a coach hired from London, and says it was remarkable they got safe, as the peasantry supported her carriage by long poles, and with their hands, otherwise they would have been overturned. The spirit of improvement was still, in a great measure, confined to our cities and large towns; in the country, even the basis and first essential of a good economical system was still deficient, or altogether wanting.

In December, 1703, Charles III., king of Spain, slept at Petworth, on his way from Portsmouth to Winsor, and Prince George of Denmark went to meet him by desire of the Queen. In relation to this journey, given by one of his attendants, he states "We set out at six in the morning, by torchlight, to go to Petworth, and did not get out of the coaches (save only when we were overturned, or stuck fast in the mire) until we arrived at our journey's end. It was a hard service for the Prince, to sit fourteen hours in the coach that day without eating anything, and passing through the worst ways I ever saw in my life (not having travelled far from London). We were thrown but once indeed in going; but our coach, which was a leading one, and his highness' body coach would have suffered much if the nimble boars of Sussex had not frequently poised it, or supported it with their shoulders, from Godalming almost to Petworth, and the nearer we approached the duke's house, the more inaccessible it seemed to be; the last nine miles of the way cost us six hours time to conquer them, and indeed we had never done it if our good master had not several times lent us a pair of horses out of his own coach, whereby we were enabled to trace out the way for him." Afterwards writing of his departure on the following day says—"I saw him (the prince) no more, till I found him at Winsor, at supper; for there we were overturned (as he had been once before that morning) and broke our coach. My Lord Damere had the same fate, and so had several others."—*Annals of Queen Ann.*

Turnpikes were introduced soon after the Restoration. In the reign of George II. it was made felony to pull them down, yet our highways continued to be generally kept in repair merely by the compulsory labour of parish paupers, or, where these could not be obtained, a compulsory statute labour on the various farms in the parish; and even so late as 1754, we are told, a traveller seldom saw a turnpike for two hundred miles, after leaving the vicinity of London. Indeed, in the winter season, the greatest part of the

roads in the kingdom were hardly passable for carriages, and exceedingly deep and miry for any other kind of travelling, except with horses, which may now be seen in the hilly parts of Cornwall. The usual manner of travelling was to hire post horses, which on the greatest thoroughfares were to be hired every ten miles.

According to *Tyne Moryson's Itinerary*, published in 1617, the traveller endeavoured to get a commission from the chief postmaster, to enable him to proceed without delay. A passenger paid 2½d. per mile for his horse, and the same for his guide's horse; but if several persons travel together, one guide would do for the whole; other persons, who have no commission, paid 3d. per mile. This extraordinary charge for horse hire is well recompensed by the greater speed of the journey, by which the expenses of the inn in slow travelling are avoided. All the difficulty, says an ancient writer, is in bearing the fatigue. The travellers are at no expense for the food of their horses, but, at the end of the ten miles, the boy or guide who takes them back expects a few pence in the way of gift. But, for the most part, Englishmen (especially in long journeys) ride their own horses; likewise carriers let horses from city to city, bargaining that the passengers must put up at their inn, that they may see they are taken proper care of; they will thus lend a horse for five or six days, and find them meat themselves, for 20s.; these carriers have long covered waggons, in which they carry passengers from city to city, but this kind of travelling is very tedious, for they must take the waggon very early, and come in very late to these inns. Coaches are not to be hired any where but in London; and, although the country is for the most part plain, or consisting of little pleasant hills, yet the ways are dirty, deep and uneven, that ordinary coachmen do not generally take long journeys. This writer deals with great bitterness on the effeminacy which these vehicles engender in the King's subjects, "They become weary and listless when they ride a few miles, unwilling to get on horseback, and unable to endure frost, snow and rain, *or lodge in the field*. That stage-coaches discourage the breed of horses is evident; for, will any man keep a horse for himself, and another for his man, all the year, to ride one or two journeys yearly, who at pleasure, when he has occasion, can step to any place where his business lies for two or three shillings, if within twenty miles of London, and so proportioned into any part of England. Formerly, every man who had occasion to travel many journeys yearly, or to ride up and down, kept horses for himself and servants, and seldom travelled without one or two; but now (he says) since every man can travel into, or to some place within a few miles thereof, they have ceased to keep horses, or to travel with servants. The writer

Introduction of stage coaches.

then proceeds to contend that travelling on horseback was much superior, even in point of personal convenience, to riding in stage coaches; his statements will, at any rate, enable us to perceive how great our travelling facilities, both as to roads and conveyances, have been improved since the seventeenth century. He asks what advantage can it be to a man's health to be called out of bed into one of these coaches an hour or two before day, and then hurried in them from place to place until two, three, or four hours within night; insomuch, that after sitting all day—in the summer season stifled with heat, and choaked with dust, or in the winter season starving or freezing with cold, or choked with filthy fogs--being often brought to their inn by torch light, when it is too late to sit up to get a supper, and next morning they are forced into the coach so early, that they can get no breakfast. How dangerous to man's health to ride all day with strangers, oftentimes sick diseased persons, young children crying, all of whose humors he is obliged to put up with, and often poisoned with noisome scents, and crippled with a crowd of boxes and bundles; and after all to be *laid fast in the foul ways, and forced to wade up to the knees in mire, afterwards to sit in the cold until a team of horses could be sent to pull the coach out;* with often rotten coaches, bad and decayed tackle, the perch or axle-trees broken; and then wait three or four hours, sometimes half a day, and afterwards to travel all night to make good this stage. This argues that they are not necessary for any person whatsoever; sick or aged persons, or young children, if they have occasion to travel, may ride in the long coach waggon, *which are those fitted up at the first*, which will contain twenty or more with their meat. But gentlemen may keep coaches of their own or ride on horseback; and as for the poor that are to travel, it is not fit that they should be encouraged in their pride and vain extravagancy to ride among gentlemen or like persons of honour, in a coach with four or six horses; and concludes, if it is impossible to put down these nuisances entirely, he suggests the following modifications:—Because it is necessary to convey goods, and a few passengers on business, from one town to another, he recommends a town or city to employ a coach or caravan to go once a week, backward and forward, and to go through with the same horses, and not travel above thirty miles a day in summer, and twenty-five in winter, and to shift inn every journey, that so trade may be diffused. These would carry all the lame and the sick, that pretend they cannot travel on horseback."

The precise year in which stage coaches were introduced is not quite clear; but, however, from comparing statements, their use was earlier known than what we call hackney coaches. It appears that the first time in which carriages were applied to public

accommodation for hire, was in the instance of the vehicles which started from Hackney, taking up casual passengers, whom they set down in London; these were called Hackney coaches, but evidently had more the resemblance of vans without springs and without windows. Hence the present Hackney coach system was introduced in London. But fashion soon brought coaches into such general use, that in 1607, it was a complaint that every citizen's wife must be jolted now, but in general it was thought disgraceful for the male sex to ride in them. Sir Philip Sydney says, "he held it as a disgrace for a young gentleman to be seen riding in the streets in a coach, as it would now for such a one to be seen in the street in a woman's dress." Sir Walter Scott says that there is a tradition in Scotland that chaises or chariots were first introduced into that country in 1745; before that time the nobility were accustomed to travel in vehicles somewhat resembling Noah's ark, and the gentry on horseback. The public have been now so long familiarized with stage coach accommodations, that they are led to think of it as having always existed. It is however, even in England, of comparatively recent date. The late John Glassford went to London from Glasgow, in 1739, and made the journey on horseback; then there was no turnpike-road till they came to Grantham, within one hundred and ten miles of London, where the turnpike-road commenced; they travelled then on a narrow causeway, with an unmade soft road on each side of it; they met from time to time, strings

The Duke of Bridgewater's canal.

of pack-horses, from thirty to forty in a gang, the mode by which goods seem to have been transported from one part of the country to another; the leading horse of the gang carried a bell, to give warning to travellers coming in an opposite direction. And he said, when they met these trains of horses with their packs across their backs, the causeway not affording room, they were obliged to make way for them and plunge into the road side, out of which they found it difficult to get back again upon the causeway. At present the change is so great, that no country on the earth is so well provided with roads and modes of conveyance of our merchandise, as our own; for, without these means, the national resources and energies would remain nearly stationary and useless. Where they do not exist, there can hardly be said to be a community; the people could have nothing in common. Commerce and intercourse mix them together into one mass.*

A slight glance at the various improvements in our canals, railroads, and steam-vessels, will illustrate how great are all our accommodations within "this little world," since the days of our fathers and grandfathers. In these grand designs we may first enumerate the resolution of Francis, Duke of Bridgewater, to cut a canal from his coal mines at Worsley to the town of Manchester, distant about seven miles. This scheme is said to have been before conceived by

* Our turnpike-road cost, in extra money borrowed, for which the tolls are answerable for the interest, £5,000,000.

one of that nobleman's predecessors, but that circumstance does not detract from the honour due to the great perseverance and resolution displayed in the execution of the plan,—divesting himself of the splendour which usually belongs to his rank, he devoted his large revenue almost entirely to his favourite undertaking, resisting the temptation to borrow money, lest he should involve himself and his successors in irremediable difficulties, in case of the failure of an undertaking, which from its novelty, no man living could assert to be certain of success, at the same time he selected Brindley as his engineer.* From long experience of his skill and talent, he placed a noble confidence in him, and, without fear or distrust, devoted his energy and fortune to work out the magnificent design which his genius had planned. As the difficulties to be overcome were very great, so there was little experience to guide the projectors. Navigable rivers had been improved, and those which were not so by nature, had been made so, by pounding their waters with locks and dams; but of canals, properly so called, this was the first constructed in England. That it might be perfect in its kind, it was resolved to preserve a level, and avoid locks altogether—obstacles which had always been considered insurmountable; navigable tunnels were to be cut, long and large mounds to be carried across

* Brindley was a man of an original genius, who superintended all the great works of this kind during the next ten years; he improved the construction of fire places in steam engines, whereby a great saving of fuel was experienced.

Success of Brindley's operations.

valleys, and, in the line which finally was adopted, an aqueduct bridge of three arches, nearly fifty feet in height, and, including the embankments on each side, five hundred yards in length, was to be carried over the river Irwell. This part of the scheme being generally considered wild and extravagant, Brindley, to justify himself to his employer, desired that the opinion of another engineer might be taken. This was accordingly done, but the second, on being taken to the spot where it was intended that the aqueduct should be made, exclaimed, "I have often heard of castles in the air, but never before was shown the place where any of them were to be erected." But the Duke's confidence was not to be shaken, and the bridge was undertaken and finished within less than the year. In 1762, the Duke obtained an act of parliament, enabling him to continue his canal from Worsley in an opposite direction to Runcorn, in the tideway of the Mersey, so as to establish a perfect water-way between Liverpool and Manchester. It is hardly necessary to add, that the result of this, the greatest undertaking, perhaps, ever performed by any previous person out of his own fortune, has been the realization of an enormous income to the peer who undertook it, and to his heirs.

This establishment, even at the present day, gives employment to nearly 1000 men, besides those employed in the great works in Scotland, of joining the Forth and Clyde by a canal. Though projected as early as the time of Charles II., when it was abandoned on account of the expense, which was estimated at £50,000, the scheme, after several revivals, was not completed until 1791. The next gigantic work of Telford, was executed in 1793, and was called the Elles-

The Ellesmere canal.

mere canal; it consisted of a series of navigations, extending collectively to a length of more than one hundred miles, connecting the rivers Severn, Dee, and the Mersey, and passing over a country so uneven, as to require the construction of works, which, from their magnitude, surpass those of Brindley as much nearly as the latter had surpassed all previous achievements in civil engineering in this country. In the valleys of the Ceriog and of the Dee, aqueducts were erected, in which all precedent was boldly departed from. The usual way of puddling for lining the canal within the masonry of the bridges, being found by experience to be hazardous in frosty weather, owing to the expansion of the clay, the chief aqueduct, which was about being constructed, being of such immense dimensions, that it presented difficulties which, but for the genius of Telford, could not have been surmounted,—he lined the bed and sides, resting on the masonry with cast iron plates. This aqueduct was completed in 1801, at a cost of £20,898, it consists of ten arches of forty feet span each, and crosses the river at an elevation of seventy feet. The aqueduct bridge across the valley of the Dee, called the Pont-y-cysytte, is of still greater extent and elevation,—the piers rise to the height of one hundred and twenty-one feet above low water. The trough is about one thousand feet long, and nearly twelve feet wide, and it contains a towing-path, supported on cast iron pillars. At one end of the aqueduct is an embankment of earth 1500 feet long, and, in some places, it is as much as seventy-five feet high. The example of Brindley in tunnelling through a hill too elevated to be passed conveniently by other means, was boldly followed by his immediate successors,—several tunnels, of much greater length than that of Horncastle-hill, having been cut, some of them being from two to three miles long—that at Sapperton, on the Thames and Severn canal, is two miles and a half long, and 250 feet below the summit of the hill. The successful accomplishment of these subterraneous works even led to a project, for the execution of which a company was formed in 1799, for the cutting of a dry tunnel, or subaqueous road, beneath the river Thames, between Gravesend and Tilbury; but although the works were actually begun, they were speedily abandoned.

A similar undertaking was commenced nearer the metropolis in 1804, and after almost insuperable difficulties, the scheme was grappled with by the genius of a Brunel—how few the difficulties to be overcome were conceived by the projectors, may be gathered from the fact that their proposed capital was only £30,000, with power to increase it, if necessary, to £50,000. Nothing could daunt the spirit which dis-

played itself in these works, as well as all the contrivances which were invented to obviate every difficulty, which, after innumerable obstacles, was at last finished (as a national curiosity if not peculiarly advantageous) at a cost of £444,270 capital, paid up, besides the amount borrowed of the government. Several other canals might have been mentioned, where the extraordinary ingenuity of not only the engineers employed, but of persons of high rank, as well as of the perseverance of those who have raised themselves by their genius and indefatigable industry from the smallest beginnings. The Duke of Bridgewater was himself the contriver of the inclined plane, which being a subterraneous excavation of one hundred and fifty yards long, descended from the upper level of his canal at Walkden Moor; a railway was laid on this inclined plane, when the coal boats are transferred from one level to another on low carriages or cradles, being there connected by a rope passing round the roller at the top, the loaded boat weighing twenty-one tons, drawing the empty boat with its cradle weighing about 9 tons, to receive a fresh supply; thirty loaded boats by this means are let down within eight hours, all this being performed under ground. This contrivance was commenced in 1795 and finished in 1797.

The great improvements of the roads of Scotland, under the immediate direction of Telford, appears to have been the forerunner of great agricultural development, as well as condusive to the increase of the manu-

facturing interest of that country. From this circumstance may be traced the great increase of rivalship in ingenuity, and progress of improvement, which took place in Northumberland about the same time, in agriculture and the arts, and has spread more or less in every part of the kingdom. It appears by the board of commissioners appointed by government, that near eight hundred miles of road and one thousand bridges had been erected in that county since 1745: part of those were begun after the rebellion in that year, merely as military roads. It was this rebellion that caused the Government and people generally to turn their attention to the improvements of roads formed on the principles of scientific knowledge, by giving to our inland towns the advantage of convenient and safe carriage, in addition to the rail-road and improved water conveyance, which, together, have brought the immense deposits of "hoarded power" in our coal mines, into close connexion with the manufacturing industry of our increasing population.

The canal between the coal works of Wednesbury and Birmingham has reduced the price of coal from 13s. to 8s. 4d. per ton; and the value of the shares, which were issued at £140 each, increased to £370 in 1782, and in 1792, to £1170.* In the latter year also, the £100 shares in the Birmingham canal rose to upwards of £1000.; yet, notwithstanding, many of the

* The total number of canals, is 59; the cost, £14,362,435,—producing annually 6¾ per cent. to the proprietors. Though the variations are extremely great, some of the canals not paying ⅛ per cent., while others pay from 15 to 36 per cent.

schemes, though beneficial to the country, proved anything but remunerative to their owners, mostly from the mismanagement of the persons employed.

The next striking improvement in our means of conveyance, was the introduction of the steam-engine to propel vessels on the water. Several experiments had been made in Scotland and in France, which were brought before the American Republic; but they led to no practical result until the subject was taken up by Chancellor Livingstone, who, notwithstanding the ridicule excited by his project, obtained an exclusive privilege of the State of New York, for navigating boats by means of the steam-engine, though his patent, or privilege, expired, in consequence of his failure in producing within the stipulated period of twelve months, a vessel capable of attaining a mean rate of four miles an hour. But shortly afterwards, being at Paris in the capacity of Ambassador of the United States, he conversed with Robert Fulton, whose mind appears to have been previously directed to the subject. Fulton and Livingstone then entered jointly upon a series of experiments on the Seine, and early in 1803, they completed a boat of considerable size, which, being too weak in her framing to bear the weight of the machinery, broke in the middle during a gale of wind in the night, and consequently sunk,—an accident, to which is attributed the admirable system of timber-framing by which many American steamers are distinguished. The shattered hull was raised, and the vessel, after being almost wholly re-

constructed, acted in so satisfactory a manner, as to induce the projectors to order an engine of Boulton and Watt.

With a view to further experiments in America, Fulton, soon after the above-mentioned experiments on the Seine, visited England, mainly, it appears, to promote his schemes for submarine navigation and warfare, where he got introduced to several eminent engineers, and obtained minute information respecting the experiments that had been made on the Clyde and other places. Before Fulton returned to America, Livingstone wrote thither, and again secured a monopoly of steam navigation in the State of New York, setting forth the claims of himself and Fulton to the invention of steam boats. While his previous failures existed, and the complete success of the scheme in Scotland, he could not be considered the inventor, he having derived his most important information from the successful labours of the British experimentalist. This clearly shows, that Fulton's claim to be the inventor is unfounded, although it cannot be denied that his perseverance and energy led to the establishment of the first steam-boat ever brought into practical operation. This vessel, which was called after Livingstone's residence, "The Clermont," was commenced immediately after Fulton's return to New York, in 1806. It was launched in the spring of 1807, and during the summer, the machinery having been fitted by the aid of the workmen sent out from the establishment of Boulton and Watt, the vessel was, for the first time, put in motion by the use of her engines, in the presence of a large assemblage of persons invited to witness the experiment. Colden, the American biographer of Fulton, observes, that nothing could exceed the surprise and admiration of all who were present on this occasion. The minds of the most incredulous were changed in a few minutes, before the boat made the progress of a quarter of a mile. The greatest unbeliever was converted—many concluded such idle schemes were a mere waste of money—the ignorant jeers of those, who had neither sense or feeling enough to repress their contemptuous ridicule and rude jokes, some of which were sarcastic in the extreme, at every little accident that occurred in the start; but the change of expression and complaisant smile, gradually stiffened into expressions of wonder, as the vessel moved from the wharf and gained her speed; the vulgar astonishment was so great as to deprive them of the power of utterance, until the triumph of genius extorted from the incredulous multitude was so apparent, that from the crowded shores shouts and acclamations of applause ensued. The "Clermont" performed, without accident, her first voyage from New York to Albany, a distance of one hundred and forty-five miles, at the rate of five miles per hour, causing in her way no small astonishment to the inhabitants on the shores of the Hudson, many of whom had never heard of a steam-engine, and appearing to some, who saw her in the night,

The experiment of the first steamer.

with a great column of flame and sparks, occasioned by the use of dry pine wood for fuel escaping from the funnel, like a monster moving on the waters in defiance of wind and tide, and breathing fire and smoke. Owing to the universal employment, in England, of mineral fuel in steam vessels, these can give but a faint idea of the startling effect of this novelty; but in America, where wood is commonly burnt, the brilliant column of ignited vapour, and a galaxy of sparks, which occasioned the singular appearance alluded to, still produce a striking, and to strangers, a somewhat alarming effect. We may, therefore, conceive the consternation which the appearance of the "Clermont" excited in the crews of those vessels which it passed during its first voyage, especially in the dead of the night; COLDEN relates, that those whose attention was first attracted by the extraordinary light, saw, with astonishment, that both wind and tide were adverse to its approach, notwithstanding it was rapidly coming towards them, and when it came so near that the noise of the machinery and paddles was heard, the crews, in some instances, shrank beneath their decks from the terrific sight, while others fled from their vessels to the shores, and many prostrated themselves and besought Providence to protect them from the approach of the terrific monster, which was marching on the tides, and lighting its path by the fires and sparks which it vomited. The next individual who appears to have applied himself to the improvements of steam navigation, was Henry Bell, a Scotchman, for many years a house carpenter in the city of Glasgow; he was fond of schemes, but having taken an hotel at Helensburgh, and hearing at the same time of the success of Fulton, determined to establish a regular steam passage boat between Glasgow and Helensburgh, which is a watering place on the Clyde, opposite to Greenock, in order to promote the success of the hotel there. This vessel, which was of about 25 tons burthen, began to be propelled regularly between Glasgow and Helensburgh, in January, 1812, but owing to the prejudice excited by the owners of fly-boats and coaches, a considerable time elapsed before a sufficient number of passengers could be obtained to reimburse the working expences, although the passage was effected in as short a time as by the coaches, and while superior accommodation was offered to the passengers, at charges equal to one-third only of the coach fares. At this juncture, when the scheme was almost failing, by the prejudices of the populace, and the contrivances of the coach proprietors, several gentlemen came forward voluntarily, in 1813, and requested to be allowed to pay a considerable part of the outlay, when Bell had expended more than he could well afford in his experiments. The next year this vessel was employed as a jaunting boat, all over the coasts of England, Ireland and Scotland, to show the public the advantage of steam boat navigation over other modes of sailing. This vessel was lost on the west coast of Scotland, in December, 1820, and, in the following year, another of Bell's vessels was accidentally burnt; neither of them was insured, and it is remarkable, that Bell lived to see the general adoption of the grand invention, which he was the first in Europe to

apply to practical use, and not only to be distanced by his rivals, but to be ruined in the competition, and reduced to indigence.

No sooner was the scheme brought into actual operation, than other persons were ready, many of them with practical knowledge of machinery, aided by the experience derived from the trials already made, even so early as 1816, to carry steam navigation into effect. The number of passengers which now go in these boats on the Clyde, may appear incredible to those who have not witnessed it. Travelling by land has not only been in a great measure superseded, owing to the cheapness and facility of the conveyance; the whole number of passengers in the common passage boats did not amount to more than fifty up and fifty down in a day, and these generally of the lower classes of the people; and those that could afford it, went by coach, and were estimated at about twenty-four up, and the same number down. But now, in fine weather, it is no uncommon thing for 600 to go and come in the same day. One of these boats alone has been known to carry 247 passengers at one time. In 1811, a steam boat of fifty tons was built in Ireland; in 1813, the first that put to sea was launched at Glasgow, of 75 tons burthen, called after that city; but she was subsequently altered, and renamed the "Thomas;" she encountered some very rough weather in the Irish sea, but accomplished the voyage from Glasgow to London, of 758 nautical miles, partly by steam and partly by sails, in 122 hours, without serious accident. In 1818, not less than ten thousand

Steam boats on the Thames.

passengers were conveyed, within four months, by the steam boats employed between London, Richmond, and Twickenham, notwithstanding the violent opposition of the watermen, who claimed an exclusive right to carry passengers on the Thames within a certain jurisdiction, but they were at length foiled in their attempts to secure their pretended monopoly, by the extensive legal knowledge of Mr. Tyrrell, the City-Remembrancer, who was a liberal supporter of the early steam-boats; and in the upshot, the watermen have been greatly benefitted, by the surprising number of persons they have to put on board and to land, who, but for this enticing mode of conveyance, would not have required boats. At this time, besides those employed on the Thames, there were now eighteen steam-boats on the Clyde, two at Dundee on the Tay, two on the Trent, two on the Tyne, four on the Humber, two on the Mersey, three on the Yare, one on the Avon, one on the Severn, one on the Orwell, six on the Forth, two at Cork, and two intended to navigate between Dublin and Holyhead. Steam-packets and luggage-vessels were beginning to be used in Russia, the Netherlands, France and Spain, and a steamer was also building in the East Indies.

Previous to 1818, steam boats but rarely ventured beyond the precincts of the river and coasts of the Friths, and that only in fine weather. At this time, David Napier set himself diligently to the investigation of the difficulties to be overcome, and in the pursuit of his object, took a passage during the stormy period of the year in one of the sailing packets between Glasgow and Belfast, which often required a week to perform the journey, and which is now accomplished, by steam, in about nine hours. The captain of the packet distinctly remembers a young man, whom he afterwards knew as David Napier, being

found, during one of the winter passages to Belfast, constantly sitting upon the bow of the vessel, and fixing an intent gaze on the sea when it broke on the side of the ship, quite heedless of the waves and spray that washed over him. As the breeze freshened, he asked the captain whether the sea was such as might be considered a rough one? and being told it was then by no means unusually rough, sat composedly, but some hours after, when the breeze began to freshen into a gale, and the sea to rise considerably, he again enquired of the captain, and was told, that it could not be called very rough; apparently disappointed, he returned once more to his station at the bows, and resumed his observations; at last he was favoured with a storm to his satisfaction, when the sea, breaking over the vessel, swept her from stem to stern,—he found his way back to the captain, and repeated his enquiry, "Do you call it rough now?" On being told that they did not remember to have passed a worse night in the whole of their experience, the young man appeared quite delighted, and muttered, as he turned away, "I think I can manage, if that be all," went down, contentedly, to his cabin, leaving the captain not a little puzzled at the strange freak of his passenger. Having thus acquainted himself with the obstacles to be overcome, Napier commenced a series of experiments, to determine the best form for steam vessels, and at length contrived a new and very superior mode of construction. In 1818, he established the "Rob Roy," of about ninety tons, between Greenock and Belfast, and in the following year, placed another of 150 tons on the line between Holyhead and Dublin, where she was soon followed by another of 170 tons. Post-office packets were not regularly established between these ports until 1821, but they soon reduced the communication to a degree of regularity previously unknown: and from that time the use of steam vessels upon the open sea made rapid and most successful progress,—passing over to America in twelve days—to the West and East Indies, some of which have engines of 300 horse power—mostly propelled about ten miles an hour, and they carry from 500 to 1000 tons of merchandize, besides their machinery and coals. The regularity and dispatch of these steamers almost exceeds belief,—the royal steam yacht, about the size of a frigate, that visited Plymouth with Queen Victoria, in 1843, could be propelled from sixteen to eighteen miles an hour.

The number of steam boats in this country, in 1836, was 600; while in the United States, there were at the same time, 800: the tonnages were 67,969 and 155,473 tons respectively. Iron steamers are now being general both in America and England; and those built of this metal have many advantages over those built of wood—such as drawing less water, and being cheaper in their construction; not so likely to be injured by rocks, and are more effectual in shallow water.

CHAP. XVIII.

THE EFFECT OF RAILWAYS ON THE CONDITION OF THE PEOPLE.

Introduction of Railways—Plate rails—Horse power—The application of the steam-engine for locomotives—Effects of Railways in the transmission of coals in Merthyr Tydvill, in Sunderland, and in the Collieries—The Liverpool and Manchester Railway—Death of Mr. Husskisson—George Stephenson's improvements—Coke as fuel—Quantity of iron used in rails—Cost—Its power—Value of Railway property—Rennie's improvements—Railways the producers of wealth to the nation.

Railways, as a mode of communication between distant places, were projected about a century before any artificial canal had been formed in England, for the purpose of navigation. The rails were first made of wood, which were laid down to facilitate the transport of coal from the collieries at Newcastle; and in some other parts, long pieces of timber were laid in the ruts of the roads, to prevent them from becoming impassable. These wooden rails consisted of parallel oaken blocks, placed transversely on the road at intervals of from two to three feet, and were fastened firmly in the ground: long thick pieces of wood, of about six or seven inches in breadth, were laid on them, securely fastened by means of wooden pins, which formed the lines. The wheels of the waggons which traversed these roads, were soon worn away by friction; yet, rude as this contrivance was to our superior methods, in the present day, its beneficial effects may be easily traced by the fact, that although a regular load for a

horse with a cart, on the common road, being 17 cwt. the same cart, used on this railroad, was enabled to convey 42 cwt. The advantage so gained, was thought quite sufficient, and no further economy of power was for years sought to be obtained. Until within a very few years, railroads have been only considered as supplementary to canals,—to be employed in short distances, or where the nature of the ground has precluded the application of inland navigation, and while the attention of our most talented and highly gifted men were turned towards the better construction of canals and inland water conveyance, the important railway was overlooked and neglected. The excellence of the canals, for a long time, seemed to preclude the necessity of any further improvements in the facility of communication. It is now about fifty or sixty years since, that iron rails were gradually substituted for wood in railroads; and their construction has, by degrees, become better understood and executed.

From 1768 to 1776, is the period when the plate railroad (more generally known as the tram-road) was first used, the improvement of the plate rail, which is the edge rail, was most generally adopted. The advantage of easy transmission over the plate rail, is the diminution of friction. On a well-constructed railroad, a horse will draw 10 tons at the rate of 2 miles an hour; $6\frac{1}{2}$ tons at 3 miles an hour; 4 tons at five miles; and $3\frac{1}{2}$ tons at 6 miles an hour; but it has been found by experience, that a horse can drag three times the weight in a boat; and as the speed is increased to five or six miles an hour, he can draw three times the weight on a rail, owing to the resistance of the water, than on a canal. Railroads were only considered fit for heavy goods, as coal, iron, or stone The locomotive engine, for drawing carriages on railroads, was not thought of, though Watt, in his patent, describes a scheme for which he had formed a steam carriage, but he never carried it into practice. Murdock, his

pupil, an engineer, (a Cornishman) when connected with Boulton and Watt, was the first who actually constructed a steam carriage in this country,—his model having been tried near Redruth, in 1782. In 1786, a model was exhibited at Edinburgh, by Symington, who had conducted some of the early experiments in steam navigation, and about the same time, Oliver Evans, an ingenious mechanic in the United States, brought forward a scheme for the establishment of steam waggons, which appeared then so startling a novelty, that he was supposed to be insane. The first practical application of the steam engine to the propulsion of carriages, was effected by Trevethick and Vivian, who patented their invention in the year 1812. Theirs was an admirably simple kind of steam engine, which may be considered the original of all high-pressure engines. Shortly after obtaining their patent, they constructed an ingenious steam carriage for common roads, and exhibited it in London ; but the generally defective state of the roads caused the patentees to abandon this application of their invention, and hardly any attempt was made to establish steam carriages on the ordinary roads. They did not, however, altogether abandon their project, but constructed a locomotive engine, suitable for running on a tramway, and tried it in 1805, upon a tramroad at Merthyr Tydvill, where it travelled after the rate of five miles an hour, and drew as many carriages as contained ten tons of iron. It may appear remarkable, that after so satisfactory an experiment, an opinion should have been very general against the possibility of a locomotive engine, impelled simply by the turning round of its wheels upon the smooth surface of the rails, and that it could draw any considerable load unless on a moderate acclivity. Notwithstanding this decisive experiment, for several years, so great was the prejudice against using steam engines in preference to horses, that cogged wheels, racks laid on the ground, mechanical legs to imitate those of a horse, were severally adopted for the purpose of forcing the engine along. An arrangement of the first-mentioned kind was patented by Blenkinsop, in 1811, and was brought into practical operation upon a railway connected with the Middleton colliery, near Leeds, where it was shown to be capable of drawing a load of one hundred tons, upon a dead level, at the rate of three miles and a half per hour, which is quicker than an ordinary cart horse ; and when lightly loaded, at a speed of ten miles an hour—at the same time performing, in a day's work, the labour of sixteen horses. At this time, these early engines were clumsy and unsightly in their appearance, yet sufficient to show, notwithstanding their numerous imperfections, how important a power was within the reach of the engineer.

These gradually extended their operations upon the collieries in the north of England ; yet, the fanciful prognostications of the fearful injury in the loss of

life and property, was unabated. In 1820, a writer on this subject requested the populace to indulge in his imagination, with an excursion some twenty or thirty years forward in the regions of time, when the dark, unsightly, shapeless machine, that now afforded him even an idea, shall be metamorphosed into one of exquisite symmetry and beauty, flying, as on the wings of the wind, glittering with all the pomp and magnificence the pride of wealth knows so well how to bestow. Although the Stockton and Arlington railway was the first laid down by act of parliament for the conveyance of goods and passengers, the project of a railway between Liverpool and Manchester came into operation, and was first entertained, in 1822. Before so great and novel an undertaking could be carried into execution, many preliminary measures were necessary, and much opposition was to be expected from those whose interests might probably be effected by the successful issue of the project. A company was, however, formed under the title of the "Liverpool and Manchester Railroad Company," and their prospectus was issued in 1824. £400,000 was raised, in £100 shares; but, subsequently it was found, this sum was inadequate for the purpose, and the opposition was so great that it was delayed for some time. However, the act to make it was carried the next year, and commenced under the superintendence of George Stephenson; who, after innumerable difficulties, particularly at Chat-moss, (which was an extensive bog), where the road had to be constructed

four miles in extent over it, so that it must necessarily be drained, levelled, and embanked at each end. At the first project of the railway, it was by no means decided what kind of power should be employed for locomotion, whether horses or engines, or fixed engines drawing the load by means of ropes from one station to another; each of these methods had been tried, and the directors were at a loss which to adopt, as the evidence brought before them was so contradictory, and the schemes proposed by some projectors were of the most varied and extravagant nature. Mature consideration and experience obtained in other undertakings, however, satisfied the directors, that the employment of horses was entirely out of the question, and at length it was determined, in 1829, to offer a premium of £500 for the most improved locomotive engine, subject to certain stipulations and conditions. Four engines were offered for trial; the distance appointed to be run was seventy miles, and one of the conditions was, that each engine, when fairly started, was to travel on the road at a speed of not less than ten miles an hour, drawing after it a weight of three tons for every ton of its own weight. The engine 'Rocket,' which obtained the prize, weighed 4 tons 5 cwt., and performed the distance in less than six hours and a half, including the stoppages which must have delayed it, as the distance was only one mile and three quarters in length, by which arrangement the machine had to pass over the plane forty times, and make as many stoppages.

In this trial half a ton of coke was consumed as fuel, coke being used instead of coal to prevent the annoyance of smoke, it travelled frequently eighteen miles per hour, and occasionally twenty. This stupendous undertaking was finished in 1830, in little more than three years. A brief view of its various ramifications may be stated, the distance being only thirty-one miles, in which are two tunnels, six considerable eminences cut through, a great part of the excavations being cut out of the solid rock, upwards of three millions of cubic yards of stone, clay and soil have been dug out of the different excavations, from these materials artificial mounds of great height and extent have been raised in the valley. Along the whole line there are sixty-three bridges; under thirty of these the railway passes, and on twenty-eight it passes over the common road, and on five it is conducted over the river Irwel, on canals, &c. The weight of iron in the rails is 3487 tons, and of the cast iron pedestals on which they are fastened 1438 tons; the total sum extended in that grand undertaking was £820,000, including the cost of constructing warehouses, machinery, and carriages. On the 15th of September, in the same year, the railway was opened by the passage of eight locomotive engines, all built by Stephenson and Co.; to these were connected twenty-eight carriages, of different forms and capacities, capable of containing altogether a company of six hundred persons, and preparations were made on a great scale to open the road by exertions of no ordinary kind; some of the most distinguished characters of the day were invited, and attended to go first over the ground. The performance of the engines was extremely satisfactory until they reached Peckfield, seventeen miles from Liverpool, when they stopped to renew the feeding, and take in a fresh supply of fuel; here several of the company alighted from the different carriages; on again starting, that fatal accident happened to Mr. Huskisson, which, after a few hours of extreme agony, terminated his life. These engines moved at the rate of thirty-five miles an hour, and the light engine that was sent to procure surgical aid at Manchester travelled at the rate of fifty miles an hour. On the following day, the 'Northumbrian' left Liverpool, with one hundred and thirty passengers, and arrived at Manchester in one hour and fifty minutes; in the evening it returned, with twenty-two passengers and three tons of luggage, in one hour and forty-eight minutes; since which time, schemes of iron railways have been extending in all directions. Several extensive lines were proposed, and the rage for such speculations was so great in the commercial crisis of 1836, that it bade fair almost to rival the South Sea mania. There are three hundred miles of railroad in the single county of Glamorganshire;* and at this time, there are completed seventy

* There are prospectively, schemes on foot for railways, to the extent that will require £80,000,000 of capital; besides £20,000,000, or more, borrowed from the Government, for their completion.

Manchester and Liverpool Railway.

companies of railroads, which cost in capital paid up £57,447,900; the revenue arising from them to the proprietors is as follows:—

About 17,000,000	of which pay	2	per cent. per annum
11,000,000	.....	10	do. do.
10,000,000	.....	7	do. do.
19,350,000	.....	3 to 5	do. do.
150,000	.....	14	do. do.

These works are such as would have astonished our ancestors, and the magnificence of their execution can only be compared with their public utility. It appeared almost beyond belief, when Brunel travelled in one of these engines on the Great Western, from London to Bristol in two hours, about 60 miles an hour, and when one engine drew 100 tons from Manchester to Liverpool in one hour and half, ; consequently it would have taken 100 horses working for a day on the turnpike road, to do what a single engine can perform in one hour and half.* The 'Sampson' engine, on the 25th of February 1831, with thirty waggons carrying gross weight 164 tons, travelled at an average speed of twenty miles an hour, on the level ground; it was assisted up the inclined plane by three other engines, and arrived at Manchester, within two hours and twenty-one minutes; the quantity of coke consumed was 1374 tons, being not quite one third of a pound per ton per mile. From the great improvements every year producing, it appears that

* Most of the locomotive engines used in the British railways are manufactured in the neighbourhood of Newcastle. One is preparing by G. Stevenson and Co., the original contriver of locomotive engines, for the Great Western railway, intended to run eighty miles an hour, and is calculated to perform double that number of miles, if required.

even these valuable conveyances are only yet in their infancy. The Great Western Railway is a wonderful undertaking; the tunnel through Box-hill, nearly three miles long, although begun at both ends is so true a line, that the sun can be seen rising on the west side, as it rises on the east, some day in April. At present the new patent atmospheric railroad appears to attract attention, and bids fair to excel others in utility and safety. On a review of the vast powers and expenditure that has been laid out, and is now daily laying out, it may be observed, that the money expended is all for our own labourers; we pay little or nothing for material, except timber, out of the kingdom; the iron and coal are raised and manufactured in the land, even to the working tools of the labourer. Thus the wealth of the country is benefited by our own resources; agriculture and the arts combining with the means of transit and expedition. Notwithstanding the check that the rage for railways received in the commercial panic of 1838, it appears to be one of the means that has restored the real application and energy of the people, which it would be only a wise policy in the Government to foster and promote.

Another interesting circumstance in the history of civil engineering is the introduction of suspension bridges, cast iron bridges, and piers of wrought iron.*

* The steam bridge over the Tamer, at Devonport, is an instance of perseverance and ingenuity. Though its present form appear so simple, several expensive failures occurred before it was perfected; its chains being each more than a mile long.

The Menai bridge.

The project of a bridge across the Menai Strait was suggested as early as 1785, and in 1801, designs were made by Rennie for such a purpose. Some years later, the matter was again taken up, and Telford prepared two different designs, one for a bridge of cast iron arches, and another to which he gave the preference, for a single arch of 500 feet, at Ynys-y-moch, where he was eventually, in 1818, directed to construct a suspension bridge, similar in principle, to the one which he had proposed to erect a few years before over the Mersey, at Runcorn Gap; this was completed in 1826. The progress of industry from this period is remarkable. Immense sums have been expended in useful contrivances to endeavour to facilitate the intercourse of the people; and in all these, nearly the whole has been spent in labour, or in the encouragement of mechanical ingenuity, such as no nation in the world can boast of beside. The innumerable buildings for commerce and for convenience, surpass even the castles of the ancient nobility, or any of the immense piles in foreign countries, whose only beauty is their ancient forms of prison-like extension.

Rapid as has been the invention of rail-roads in this country, they are really insignificant compared with their extension in America, and the schemes on foot on the continent and Russia, and by various other governments. Several extensive lines have been completed in various parts of the Union, those as well as these now in progress are all state undertakings, amounting to about 1,600 miles in length, they having cost on the aggregate 30 millions of dollars.

Our legislation as to railways and most other descriptions of public works, appears to be as defective as can well be imagined. It is, and must be admitted no easy matter to decide how far an interference with private property should be carried in such cases, and where it should stop. At present, the practice is for a railway act to authorize the company in whose favour it is granted, to charge certain rates of toll on the passengers and goods, not for any specified time, but continually! It is no difficult matter to observe that in case of a second line being proposed and undertaken to check this, which may be made a species of monopoly, and would be ruinous to overcome whatever might be the chances if success on the beginning. The fair presumption is, that most lines of roads will be exceedingly productive, by the increase of population, and the manufactures and commerce of the people Instances of example in various parts of the kingdom, where private or public companies have been allowed to erect bridges and roads, for the public use, by the payment of a toll which at first appeared remarkably reasonable and small, are numerous; but by the increase of population and commerce, this has become a heavy tax on the public :—for example, The Laira and the Stonehouse Bridges were erected by private persons to supplant the use of ferries; the latter now pays an enormous yearly revenue, enough to build the bridge. Its value was rated at £40,000, when the proprietor was applied to, to throw it open to the public.

CHAP. XIX.

COMMERCE.

The nature of commerce—Mercantile operations—The merchant the middle man between the grower and consumer—Folly and unprofitableness of multiplicity of engagements by one individual—Division of labour expedites production, becomes profitable—Opulence and comfort produced by commerce—Nature of monopolies—Their injustice, and effects—The monopoly of bibles—Competition fosters commerce, promotes national affinity.

Although the origin of commerce is coeval with the first dawn of civilization, the moment that individuals ceased to supply themselves directly with various articles and accommodation, they began to apply themselves to social intercourse and commercial enterprize grew up amongst them; for it is only by exchanging that superfluous portion of produce raised by themselves, that exceeds their own consumption, for such portions of the surplus raised by others, that the division of employments can be introduced; or that different individuals can apply themselves in preference to different pursuits. Not only does commerce enable the inhabitants of the same village or parish to combine their separate efforts to accomplish some common object, but it also enables those of different provinces or kingdoms to apply themselves in an especial manner to those callings for the successful prosecution of which the districts or country which they occupy give them some pecu-

liar advantage. The territorial division of labour has contributed more than anything else to increase the wealth and accelerate the civilization of mankind; were it not for it, we should be destitute of a great number of the necessary comforts and enjoyments which we now possess, and the prices of the few that should remain would in most instances be very greatly increased, while the exchange of different products is carried on by the producers themselves, they must unavoidably lose a great deal of time and experience many inconveniences. Were there no merchants, a farmer wishing to till his crop would be obliged, in the first place, to seek for customers, and to dispose of his corn as nearly as possible in such quantities as might suit the demands of the various individuals inclined to purchase, and after getting its price, he would next be obliged to send to various different remote places for the commodities required in its stead, besides being exposed to an immense deal of trouble and inconvenience, whereby his attention would be continually directed from the labour of his farm. The establishment of a distinct mercantile class effectually obviates these inconveniences. When a set of dealers erect warehouses and shops for the purchase and sale of all descriptions of commodities, every producer is relieved from the necessity of seeking customers, and knowing beforehand where he may at alltimes be supplied with products he may require, devotes his whole time and energy to his proper business. The intervention of merchants gives a continuous and uninterrupted mo-

tion to the plough and the loom; were this class of traders annihilated, all the springs of industry would be paralyzed. The numberless difficulties arising in affecting exchanges, would lead each particular family to endeavour to produce all the articles they had occasion for: society would be thus thrown back into primeval barbarism and ignorance; the divisions of labour would be relinquished, and the desire to rise in the world, and improve our condition would decline according as it became more difficult to gratify.

What sort of agricultural management could be expected from farmers who had to manufacture their own wool and make their own shoes; and what sort of manufacturers could they be who were every now and then obliged to leave the shuttle for the plough, or the needle for the anvil? A society without that distinction of employments and professions resulting from a division of labour, that is without commerce, would be totally destitute of arts or sciences of any sort. It is by the assistance each individual renders to and receives from his neighbours, by every one applying himself in preference to some peculiar task, and combining, though probably without intending it, his efforts with those of others, that civilized man becomes equal to the most gigantic efforts. The mercantile class may be divided into the wholesale and retail dealers; if the wholesale merchant were himself to retail the goods he has brought from different places, he would require a proportionate larger capital, and it would be impossible for him to give that exclusive attention to any department of his business which is indispensible to its being carried on in the best manner. It is for the interest of each dealer, as of each workman, to confine himself to some one business; by this means each trade is best understood, better cultivated, and carried on the cheapest possible manner. But whether carried on by a separate class or not, it is obvious that retailing of commodities is indispensible. It is not enough that a cargo of tea should be imported from China, or a cargo of sugar from Jamaica; most individuals have some demand for these articles, but there is not a single private person even in London, requiring so large a supply for his own consumption; it is clear, therefore, that it must be retailed, that is, it must be sold in such quantities as may be most suitable for all classes of customers. The observations already made serve to shew the influence of trade on the various individuals of a prosperous state, but it is not in this respect only that the establishment of trade is advantageous. It is still so in a greater degree by its

allowing the inhabitants of the various districts of the empire to turn their labour into those channels in which it will be most productive. The different soils, the different climates of various districts, fit them for being appropriated in preference to certain species of industry; a district where coal is abundant, with an easy access to the ocean, and a considerable command of internal navigation, is the natural seat of manufactures. Wheat and other species of grain are the natural products of rich arable soils; and cattle, after being reared in mountainous districts are most advantageously fattened in meadows and low grounds. Hence, it follows that the inhabitants of different places, by confining themselves to those branches of industry, for the successful prosecution of which they have some peculiar capability, and exchanging their surplus produce for that of others, will obtain a larger supply of all sorts of the useful and desirable products than they could do, were they to apply themselves indiscriminately to every different business. The territorial division of labour is even more advantageous than its division among individuals. Hence it is, that the inhabitants of the richest and most extensive country, provided it were divided into small districts, without any intercourse with each other, or with foreigners, could not, how well-soever labour might be divided amongst themselves, be otherwise than poor and miserable; some of them might have a superabundance of corn, at the same time they must be wholly destitute of wine, coal, and iron, while others may have the largest supply of the latter articles with but little grain.

In commercial countries, no such anomalies can exist: opulence and comfort are there universally diffused, and the labours of the mercantile class enable the inhabitants of each district to apply themselves principally to those engagements that are naturally best suited to them. Thus the benefits of commerce enable every individual to avail himself to the utmost of the peculiar advantages of his situation, to work on the materials with which nature has furnished him, to humour his disposition, and betake himself to the task in which he is peculiarly qualified to succeed. The inhabitant of the mountains may interest himself in the care of the woods, and his timber, and his flocks of sheep; the owner of the pastures and meadows may take himself to the care

of his herds ; the owner of the clay pits to the manufacture of pottery ; and the husbandman to the culture of his fields. In other respects, the advantages resulting from improved communication are probably more striking ; they give the same common interest to every different part of the most widely extended empire, and put down, or rather prevent, any attempt at monopoly on the part of the dealers of particular districts, by bringing them into competition with those of all the others. Nothing in a state, enjoying great facilities of communication, is separate or unconnected ; all is mutual, reciprocal, and dependant. Such being the vast extent of the advantages derived from trade, it is obviously the duty of the legislature to give it every proper encouragement and protection ; but it will be found, on a little consideration, that this duty is rather negative than positive—that is, consists less in forming regulations than in removing of obstacles. The errors of government in matters of trade have not been that they have done too little, but that they have attempted to do too much. All regulations, whatever be their object, that operate either to prevent the circulation of commodities from one part of the empire to another, or the free circulation of labour, necessarily tend to check the division of employment and the spirit of competition and emulation, and must in consequence lessen the amount of produce. The same principle that prompts to open roads, to construct bridges and canals, ought to lead our legislators to erase from the statute book every regulation

which either prevents or fetters the operations of the merchant, and the free disposal of capital and labour. Whether the internal freedom of commerce be interrupted by impassable mountains and bogs, or by excessive tolls or restrictive regulations, the effect is equally pernicious.

The common law, as well as the ancient statute law of England, is decidedly hostile to monopolies, or to the granting of powers to any individual class to furnish the market with commodities; but, notwithstanding this concurrence in favour of the freedom of industry, during the arbitrary reigns of the house of Tudor, the notion that the Crown was by its prerogative entitled to dispense with any law to the contrary, and to establish monopolies,* became fashionable amongst the court lawyers, and was acted upon to a very great extent. Few things, indeed, occasioned so much dissatisfaction in the reign of Elizabeth, as the multiplication of the monopolies; and notwithstanding the opposition made by the Crown and the court party in Parliament, the grievance became so intolerable as to give rise to the famous statute of 1624, by which all monopolies, grants, letters patent, and licences for buying and selling, and making of goods and manufactures, not given by an act of the legislature, are declared to be altogether contrary to the law of this realm, void, and of none effect, excepting patents for fourteen years for the sole making of new manufactures, &c. This statute has been productive of the greatest advantage, and has perhaps contributed more than any other to the development of industry, and the accumulation of wealth. With the exception of the monopoly of printing bibles, and the restraint imposed by the charter of bodies legally incorporated, the freedom of the internal industry has ever since been vigilantly protected; full scope has been given to the principle of competition.† It is to this freedom that the comparatively

* Henry VII. ordered all the merchants' stores and shops in the kingdom to be closed, and to bring their goods for sale to his fair at Westminster, for several weeks. The account states, that during this time the weather was so unpropitious, that it rained nearly all the time; and the quantity of merchandize that was spoiled was immense; and yet he persisted in the same course three years after; the same kind of weather continued all the time, so that the merchants' loss was great.

† The last important monopoly was bought by Parliament, which was for the whole supplying of coal to the city of London. It was usual for the reigning monarch to grant monopolies instead of pensions, to individuals on whom they wished to convey favours; some of which were most extravagant.

flourishing state of industry in Great Britain is mainly to be ascribed. It may be sufficient to expose the fallacy of the opinion that has sometimes been maintained, that whatever one nation gains by her foreign commerce must be lost by some one else; it is singular how such a notion should even have originated. Commerce is not directly productive, nor is the good derived from it to be estimated by its immoderate effects. What commercial nations give is uniformly the fair equivalent of what they get; in their dealings they do not prey upon each other, but are benefited alike. But the influence of foreign commerce in multiplying and cheapening the conveniences and enjoyments, is perhaps inferior to its direct influence on industry—by adding to the mass of desirable articles, by inspiring new tastes, and stimulating enterprize and invention by bringing the people into competition with foreigners, and making them acquainted with their arts and institutions. The apathy and langour that exists in a rude state of society has been universally remarked. Not only does foreign commerce excite industry, and distribute the gifts of nature; but it also contributes the gifts of science and of arts, and gives to each particular country the means of profiting by the inventions and discoveries of others as much as by those of her own citizens. The ingenious machine invented by Whitney in the United States, for separating the cotton wool from the pod, by reducing the cost of the raw material of one of the principal manufactures, has been quite as advantageous to us as to his own countrymen; and the discoveries of Watt, Arkwright, and Wedgwood, by reducing the cost of the articles we send abroad, have been as advantageous to our foreign customers as to ourselves. Commerce has caused the blessings of civilization to be universally diffused, and the treasures of knowledge and science to be conveyed to the remotest corners. Its humanising influence is most important, while by making each country depend for the means of supplying a considerable portion of its wants, on the assistance of others, it has done more than anything else to remove a host of the most hateful prejudices, and to make mankind regard each other as friends and brothers and not as enemies. The dread once so prevalent of the progress of other nations, in wealth and civilization, is now universally admitted to be as absurd as it is illiberal. A commercial war, whether crowned with victory or branded with defeat, can never prevent another nation from becoming more industrious than ourselves; and if they are more industrious they will sell cheaper; and, consequently, your customers will forsake you, and go to them. This will happen, though you cover the ocean with fleets, and the land with arms. The soldier may lay waste; the privateer, whether successful or unsuccessful, will make poor—for it is the eternal law of providence, that "the hand of the diligent can alone make rich."

If therefore, the agriculturist is more heavily taxed than any other branch of industry, which no doubt is a fact, because the land is loaded with nearly the

The land burdened with taxes.

whole of the pauperism and the unemployed poor; and, in addition, the tax of the whole ecclesiastic law of tythes (unless a scheme for the relief of the poor rate, which we hope to make clear in the improvements, will alter these views.) The agriculturists are entitled to demand, that a duty be laid on all foreign corn when imported, corresponding to the excess of the burthens affecting them. When a duty is laid on the importation of foreign corn, for the equitable purpose of counteracting the peculiar duties laid on the corn raised at home, an equivalent drawback ought to be allowed on its exportation. In allowing this drawback, we are merely returning to the farmer (through the merchant) a tax which he has already paid, and which he ought to have to place him in a comparative state of competition in the foreign market—not only with the foreign producer, but with his own countrymen, who are producing other commodities. A duty, accompanied with a drawback, as now stated, would not only be an equitable arrangement, but it would be greatly for the advantage of the farmer, without being injurious to any one else; this would be essentially different from a bounty on exportation, in the sense in which the word bounty is generally understood. The radical defect of the system followed from 1815 down to the present moment is so great, at least as respects agriculture, that it forces up prices, in years when the harvest is deficient; while it leaves the market to be glutted when it is abundant; but while a constant duty of

six shillings would secure to the home grower all the increase of prices which the regard due to the interest of others should allow them to realise in a bad year: the drawback of 6s., by enabling them to export, in unusually plentiful years, would prevent the market from being over-loaded, and the prices from falling to the ruinous extent to the renter that they now occasionally do. Such a plan would render the business of the corn dealer, and of agriculture, comparatively secure; and would therefore provide for the continued prosperity of both. We are astonished that the agriculturists have not taken this view of the matter.

The principal objection to this plan is, that it would be impossible to levy the duty when the home price became very high; and that, consequently, it would be frequently necessary to suspend it. But this objection does not seem to be by any means so formidable, as it has sometimes been represented. It may be concluded, on unassailable grounds, that were the ports constantly open under a moderate fixed duty, and an equivalent drawback granted, extreme fluctuations of price would be very rare. Yet, supposing that when the home price exceeded 80s. per quarter, the duty should cease—which we believe, would very seldom come into operation, on account of the immense stores there would be always in bond in the kingdom—those who object that it is not fair to the farmers to deprive them of the full advantage of the highest prices, should recollect that in matters of this sort, it is not always either possible, or if possible, prudent to carry the soundest principles to an extreme, and that the interests of the public are better consulted by guarding against dearth and scarcity.

The real object of the corn laws of 1815, was to keep up the price of corn to 80s. per quarter, but to succeed in this it was indispensible not only that foreign corn should be excluded when prices were under a certain limit, but that the markets should never be overloaded with corn produced at home, for it is clear that if the supply should in ordinary years be sufficient

for that purpose, and when, in such cases, the surplus is thrown on the market, it cannot fail in the event to cause a ruinous depression. Now this was the precise situation of this country at the end of the war, owing to the act of 1804, but far more to difficulties in the way of importation, and the depreciation of the currency, prices attained an extraordinary height in 1809 to 1814, and gave such a stimulus to agriculture, together with the machinery used instead of manual labour, that we grew in 1812 and 1813 sufficient corn for our supply, and such being the case, it is clear, though our ports were sealed against importation from abroad, that the first luxurious crop must have occasioned a ruinous decline of prices. It is the exclusion, not the destruction of foreign corn that has caused the distress of the agriculturists, for it is this exclusion that has forced up prices of corn in this country in scarce and average years, to an unnatural level, and that, consequently renders the importation in favourable seasons impossible, without such a fall of prices as is most disastrous to the farmer. It may be mentioned, in proof of this statement, that the average price in 1814, was 74s. per quarter, and in 1815, it had fallen to 64s. But as these prices would not indemnify the occupiers of the poor lands, brought under tillage during the high prices, they gradually relinquished their cultivation, a considerable portion was converted into pasture, rents were greatly reduced, and wages began to decline, but the legislature having prohibited the importation of corn, the operation of this natural

principle of adjustment was unfortunately counteracted, and the price of 1816 rose to 75s. 10d.; this rise was insufficient to occasion any new improvement, and as foreign corn was now excluded, and large tracts of land had been thrown out of cultivation, the supply was so much diminished, that notwithstanding the increased value of money, prices rose in 1817 to 94s. 9d., partly, no doubt, in consequence of the bad harvest of the preceding year, and in 1818, to 84s. 1d. the latter being the most productive crop of wheat till 1844, almost ever known; these high prices had the natural effect—they revived the drooping spirits of the farmers, who imagined that the corn law was at length beginning to produce the effects anticipated from it, and that the golden days of 1812, when wheat sold for 125s. per quarter were about to return! The increased prices necessarily occasioned a fresh extension of tillage, capital was again applied to the improvement of the soil, and this increase of tillage, conspiring with favourable seasons, and the impossibility of exportation, sunk the prices to such a degree, that in October, 1822, to 38s. 1d., and the average price of the year was only 43s. 3d. By this we may see that it is only a free trade in corn that can give the farmers that security against such amazing fluctuations, and therefore to guard against the variations and imposts of taxes, a fixed duty and drawback as we have described, would combine steadiness of prices with the prevention of their rising to an oppressive height; and, on the other hand, when the crops were

unusually luxuriant, a ready outlet would be found by the drawback for the surplus in foreign countries; our West India islands would draw from us their supplies, as well as various other places, which now purchase on the continent. If we would secure for ourselves abundance, and avoid fluctuation, we must renounce all attempts at exclusion, and be ready to deal in corn, as we ought to be in everything else, on fair and liberal principles.

The report of the committee of the House of Commons, in 1830, that the estimate for that country must be also considered extremely moderate. The exports of corn to England are very large—in 1806, 400,000 quarters of grain, of all sorts, were exported to England; and in 1830, the quantity had increased to 2,400,000 quarters; and all sorts of agricultural produce in proportion. The committee were informed that some of the small dealers, who were formerly making about £400 a year, can now make, in the same article, £10,000. Fifty tons of eggs, and ten tons of live and dead poultry, are sometimes shipped from Dublin in a single day. One of the witnesses informed the committee, that in 1824, in eggs alone, a branch of trade entirely new, there were exported from Dublin to the value of £273,000. Cattle were brought from Ballynasloe to Liverpool in little more than three days.

CHAP. XX.

COMMERCE.

Produces a reciprocity of kindly feeling in nations—Imports and exports—Artificial protection—The contrast—Sliding scale—Its effects—Fixed duty—Importation of wheat from Ireland—Canning's opinion on the corn laws—The glove trade—East India trade—Tobacco—Tallow—Coffee—Sugar—Tea—Cotton—The effects of commerce on civilized nations.

Though our national industry may appear remarkable in relation to its manufactures, its fisheries and internal intercourse, raising a spirit of emulation and energy, not to be found a parallel on the face of the globe, at the same time her merchants are esteemed as were those of Tyre of old, princes, and among the honourable of the earth. The amazing increase of the commerce of the nation, notwithstanding the impediments which war always creates, even in its most successful position, is wasteful and destructive in the extreme, which has placed this country, surrounded as it is by water, in a situation of becoming a depôt for the exchange of the commodities of all nations. The commerce of England has been extending gradually since the reign of Elizabeth, though at times, particularly in the reigns of Charles I. and II., it received a considerable check from the religious bigotry of the times, though at other periods the hospitable reception of the fugitives of other nations, who had been driven by the same cause, was one of the principal effects of

the increase this nation may ascribe her superiority in her manufactures and commerce, as well as our improvements in agriculture. We may observe a fact often exemplified, which is the rapidity with which this country has revived from the destruction and waste of war, as if the spirit of enterprise has started forth on the return of peace like a spring from which a heavy pressure had been removed. We need not refer further back than the revolution in 1688, to illustrate this fact. In the course of the eight years war which followed, the receipts of the customs fell off considerably, within the same space the revenue of the post-office is stated to have been reduced from £76,318 to £58, 672, which may be taken as an evidence, that the pressure of the war was not confined to our foreign trade, but was felt throughout our sacred system. In 1790 it rose again at the return of peace to £82,319, and our exports for the three years preceding amounted to £6,709,881, of which £2,932,292 were for our woollen manufactures, which goods were conveyed in 337,328 tons of shipping, of which no less a proportion than 293,703 were English, and the foreign 43,625, just about one-tenth of what it now is. About a century before this the greatest proportion of shipping was foreign, the British was very small. Our trade with Holland at this time was in woollen goods, lead, and iron ware, hemp, flax, and thread linens, with a variety of smaller articles, enumerated by Devanant at forty-five species of goods.

Imports and exports.

Whereas, in the beginning of the reign of Anne, we exported 120 different kinds of goods, which principally were woollen goods, tin, lead, brass, molasses, wrought silk, butter, and morkins (hides). Our exportations of lead amounted to only £297 in 1669, but in 1703 it increased to £38,283. Our exports of tin, also, in 1669, were valued at £1,635; and in 1703, at £17,051. At this time, the exportation of grain was small to Holland, Spain, Denmark, Africa, Italy, and Portugal:—from 1663, the average value did not exceed £4,315 per annum; whereas, in the eleven years from 1700 to 1710, we exported to Africa, the Canaries, Denmark, Norway, Flanders, France, Holland, Germany, Ireland, Madeira, Portugal, Russia, Scotland, Sweden, Venice, besides the British plantations of America, corn to the value of £274,934 per annum. Of the amount of that entered for exportation, Holland alone averaged £151,934; what part of this was for their own consumption, and what part they exported to other countries, does not appear; but it was conjectured by many, that because they always had large stores of corn in their granaries; that they kept our wheat till years of scarcity, and then brought us back our own wheat, because of the premium we gave at that time for the importation. However, this scheme had such an effect on our agricultural population, that our produce was nearly doubled within the next ten years, at the same time, the prices were considerably less than they had hitherto been. In 1758, the value of our exports amounted to £12,618,315; in 1760 to £14,693,270—yet at this period, our imports were quite insignificant:—

	Imports	Foreign exports	British and Irish produce and manufactures
In 1800	£31,776,263	£10,336,966	£24,927,684
„ 1810	39,301,612	9,357,465	34,661,901
„ 1820	32,428,650	10,555,912	38,395,685
„ 1830	46,245,241	10,662,402	61,140,864
„ 1840	67,432,964	13,774,306	102,714,060

In 1722, our post-office revenue for the United Kingdom was	£201,804
„ 1755	345,321
„ 1800	1,083,950
„ 1830	2,058,720
„ 1835	2,107,677
„ 1842	1,495,540

It is curious to remark that, in 1677, in a printed list of British merchants, there were only 1786 altogether in London and its environs; these were all true importers and exporters of goods. The same account states that those of Bristol and other trading towns of Great Britain, Ireland, and our plantations, with those of Spain, Italy, Turkey, Portugal, Holland, Germany, Russia, Norway,

Imports and exports.

the Baltic, Africa, and the East Indies, did not amount to two-thirds of that number, with all the rest of the merchants of Europe. A century before this, the preponderance was in favour of Holland; the Dutch were the grand capitalists of Europe, and knew how to maintain their superiority, and if it had not been for civil dissension and wars, they would have maintained it to the present day. The Dutch here stood in the position of the capitalists of Europe, and the English as the labourers, the former, in fact, employed the latter to work for them, to produce the goods, the woollens, the iron, and various other articles, which they sold at a profit to other countries. Of course in such a connection, while the Dutch had the goods, the English had the money, the latter would be benefitted by the exchange, the exports to Holland were £2,417,890 in 1703, or very nearly one-third of the whole to foreign ports. Yet the imports from Holland, in the same year, were only 232,568 in foreign vessels, mostly their own; to Germany £938,791, while our imports from the same place, were £677,521; by this account our trade was profitable to the Kingdom, as well as to Holland; by our dealing with the north of Europe, as well as with France, we were losers according to the same way of reckoning. Our imports to France, Denmark, and Norway were £75,215, and our exports amounted only to £39,543; to the East Indies our imports were 181,296, exports 149,893; in Russia, £112,252; exports 58,884; to Sweden the exports were only 57,555 and the imports 212,094.

Immediately after the revolution, an act was passed renewing and strengthening the former laws against the exportation of the raw material, which was conceived to be very remissly observed, through the negligence of the officers of the customs; this was under an idea that such exportations would inevitably sink the value of lands in this country, and tend to the ruin of the trade, and the woollen manufactures of the realm. In the next year the Parliament put an end to all the duties on the exportation of corn, and all subsisting duties upon the exportation of home woollen manufactures, on the ground of our progressive improvements, and the increase of our population at home; as also of our extensive possessions in the plantations of America. The system of artificial pro-

tection was not applied exclusively to our woollen manufactures, as they were now so extensively sold in all the American colonies, as well as in the various European states; but it was particularly to the corn, that artificial protection was extended. We have already alluded to the *objects* of the various legislative enactments on the corn grown in the kingdom, so as to regulate its price, and we have also seen that one or two good harvests have nullified the operation of the laws. We will now glance at the various acts which have been passed to regulate the price of grain, and thus artificially to foster agricultural operations. The first law permitting the exportation of corn from England without the Royal licence was passed in 1394: (17 Rich. II. c. 7). By this act, exportation which appears to have been before strictly prohibited, was made free in all circumstances, whatever the price might be at home, the only check reserved was, that as the King had the power, formerly, of allowing exportation in particular cases, so now he might forbid it when it appeared to him to be for the profit of the realm. The matter therefore, in fact, remained as before under the control of the Crown—with this difference, that now exportation was established as a general law. The alteration of the law may be taken as indicating the increase of the political power of the agricultural interests, together with the increased production and produce of the soil; and these two causes operated in moulding our corn laws for the interests of the producer, to the present time. In 1436, (by 15 Henry

VI., c. 2) the right of exporting, in the case of the home price being under a certain point, was given absolutely without any restriction or reservation whatever; the power of prohibition was taken from the King, so long as the prices remained below the sum specified, which was 6s. 8d. per quarter. In 1463 (by Edward IV., c. 2) a new advantage was given to the producers by importation being for the first time forbidden, whenever the prices should be under that point; in this state, the law remained for seventy-one years. But, in 1534, (25 of Henry VIII. c. 2) the legislature swept away the exporting laws of the last 140 years, and suddenly restored for a time, the original state of the law, by which the whole depended on the caprice of the royal licence.

The importation laws had become inoperative, from the rise of prices that had taken place since this had been passed; this state lasted for twenty years, during which time, the agricultural prosperity, that was gaining ground in Edward's time, declined. This may be accounted for, not only in a commercial point of view, but on account of the disturbing and domineering power of both the king and the popish clergy, which checked the industry of the people. The variation of prices caused the necessary and the greater privations of the poor,—the court foolishly imagining, that the raising of prices in unproductive years, was occasioned by the contraband exportation of the victuals of the country,—issued a proclamation against "many and sundry covetous and insatiable persons, seeking their own lucre and gains, had, and daily do, carry and convey innumerable quantities, as well as corn, cheese, butter, and other victuals, (the prohibition extending to numerous other articles) as of wood, out of this realm, into parts beyond the sea, by reason whereof the said corn, victual, and wood, are grown into a wonderful dearth and to extreme prices." So that we see even this short solitary suspension of the onward movement of cultivating land,* or

* At this time the corn was produced, not by the farmer, but by the nobles, who received it from their tenants; and from the extra consumption on the estates of the gentry and nobles, the soil was tilled very similar to the lands in Poland at the present time—the peasantry never tasting of the corn.

rather land owning. In 1562, (5 Eliz. c. 5), an act, curiously entitled, "touching certain political constitutions, made for the maintenance of the navy." The limit within which there should be a free exportation of wheat, was enlarged by the elevation of the termination price to 10s. per quarter– a corresponding alteration was also made for other descriptions of corn. In 1571, (15 Eliz. c. 13), the law of 1394 was restored, and exportation was made free, whatever might be the home price, at all times when no proclamation had been issued to the contrary. In 1623, (21 James I, c. 28), it was limited to 32s; in 1660, (12 Car. II, c. 4), to 40s.; and in 1663, to 48s.. Up to this time, the landed interest has been successful in breaking down the ancient policy of the kingdom, which was prohibitory of all exportation in all circumstances, and forbidding importation while the home price was under 6s. 8d. per quarter, which had long ceased to be operative. Down to this time, though wheat was the grain generally exported, it was for many years after this not considered the common food of the people; for even the cities hardly ever consumed but a very small portion of this grain, except in London. In 1670, (22 Car. II. c. 13), a new system commenced—the price was raised to 53s. 4d.; but the importation was restrained by being loaded with a prohibitory amount of duty, as long as the price in the home market was under 53s. 4d.; and even with a heavy duty of 8s. per quarter, when the home price reached 80s. This was the law in force at the time of the revolution,—corn could not be brought from abroad at all, until the price at home rose to 53s. 4d.. and even then, not without the payment of a tax, which made it necessary that the cost of purchase, and the charge of conveyance together, amounted to 4.5s. 4d., at the same time its exportation was perfectly free; and immediately after the revolution, (1 William and Mary, c. 12), in order still more to stimulate the agricultural interest in making this country a great corn growing kingdom, a bounty of 5s. per quarter was paid, so long as the home price did not exceed 48s.; and in 1699, (1 William III, c. 20) "for the greater encouragement of tillage," corn sent abroad was relieved even from all custom-house duties. This system continued until 1773, and was not wholly repealed until 1815, though for the last thirty years our imports were greater than our exports, mostly by reason of the greater consumption of wheat among the people generally, some few counties excepted, whose population had "their rye teeth."* Some little idea may be gathered of the quantity grown for exportation, although England was never considered a corn exporting country to any extent. In 1697, it exported 14,699 quarters of wheat and flour; in 1699, only 557. In 1700, it was 49,056; and the ten following years, while it rose in 1706 to 188,332, it never was under 74,000 until 1710. In the next ten years it ranged from 71,800 to 176,227; in

* It is said of England in general, that at this time "they had lost their rye teeth," meaning the common people had become too dainty to eat barley and rye bread, and oaten cakes, as their forefathers had done.

Exportation of corn.

1722, it was 178,880; in 1723, 157,720; in 1724, 245,862; and then, for a few years, it was only 3,817, varying to 30,300 quarters; and afterwards, in 1738, it was seldom less than from 200,000 to 400,000 quarters, and sometimes considerably more; in 1749, it was 629,049, and in 1750, 947,602 quarters; in 1751, it was only 661,416 quarters. It has often been contended, and formerly it was an opinion almost universally held, that by the extension of tillage, which it occasioned, the system of bounties upon the exportation of corn operated to keep down the price of the commodity in the home market; before these means were made use of, it appeared almost impossible to stimulate the agricultural interest, even, as the saying is, when they had the meat put into their mouths, for as long as a country thinks only of its own subsistence, it has always found itself short of the necessary food, and we were, therefore, often obliged to have recourse to foreigners to make up the deficiency of our supply.

When agriculture became an object of commerce, the cultivation of land became one of the most profitable in Europe.—(See a further illustration of this subject in regard to produce, in the State of Agriculture, p. 297.) The great change that has for a number of years gradually been gaining upon us, is caused, in a degree, by a change of diet in the greater proportion of the people, which began at a time when, from unforseen calamities, distress spread over the face of Europe. For many years, about the time of the French revolution, owing to defective harvests, there were hardly two good, or average years of corn, together. The inhabitants of great part of Germany and France, suffered greater privations than we did in England; at one time it was so great, that Bonaparte applied to Pitt, as an act of charity, to send to Paris, from London, 20,000 sacks of flour,* for which

* Pitt consulted some of the leading corn-factors in London, when it was concluded that it was impossible to supply him, though the subscriptions and generous aid of England, enabled multitudes to be sustained even during the excitement and horrors of war.

he would have paid in gold; and the more precise and authoritative the French government enforced the laws, compelling supplies, the greater was the famine. These unproductive years continued until 1801. This waste and destruction of food was occasioned by the wars, which raged with unabated fury to 1814; in addition, it kept the prices of all the other necessaries of life to a high pitch. From the next two years, the prices of corn gradually declined, when, from the failure of 1816 and 1817, the price in 1818 was as high as in the war, though the season was remarkably fine, being the largest crop of wheat ever known, until 1844. The operation of the corn laws of 1815, acted so contrary to the received notion of advancing the average price of the kingdom, by a sliding scale of duty, which has always acted in an inverse ratio to the pockets of the landed interest, as also has, in a less degree, the present alteration of the law,—to make corn in the cheapest state possible to the consumer, by fixing a greater or less duty, as occasion requires, for a certain number of years; we must not only encourage the growth of corn in this country, but stimulate the foreigner to grow corn for the supply of this or neighbouring countries.

A circumstance connected with this subject, is the astonishing increase of the produce of wheat, barley, oats, and oatmeal, in our sister country. In 1800, the supply of wheat from Ireland was only 749 qrs.; and in 1801, still less—150 qrs. of wheat, and 373 quarters of oats.

Canning's speech on the corn laws.

	Wheat.	Barley.	Oats.
In 1802,	108,751 qrs.	7,116 qrs.	341,151 qrs.
„ 1803,	61,267	12,879	269,359
„ 1806,	102,267	3,337	333,203
„ 1816,	121,631	62,560	691,498
„ 1826,	314,851	64,895	1,385.734
„ 1836	588,757	184,156	2,132,138
„ 1841,	218,708	75,563	2,539,380

In some of the intermediate years, the quantity was considerably higher; in 1822, it amounted to 800,000 quarters, and averaging above two millions and a half for all kinds of grain since 1828,—in one year (1832) nearly three millions. Such a supply, besides the innumerable quantities of bacon, butter, lard, and live cattle, pigs and sheep, to Liverpool and coastwise, to the number of 849,616, and amounting in value to £3,358,857 average per annum, for several years,—besides 89,000,000 of eggs imported into England, which could not possibly be equalled from any quarter of the globe. The number of cattle imported from the continent since the new tariff, has been—cattle, 2558, sheep, 512, pigs, 233.

By a reference to the note in p. 202, we are informed by a committee of the House of Commons of the very extensive importations of corn and other produce, from Ireland, into this kingdom. We will now give the opinions of one or two of our greatest legislators on the subject of protection :—

In George Canning's speech in the House of Commons, in 1827, he states:—

"It seems to me desirable, that if there is to be a trade in corn at all, it should be conducted, as far as possible, on the principle of other trades, in a sober, regular course, and not by perpetual jerks and impulses, arising out of extraordinary emergencies. I am persuaded, that if *importation be always free*, taking sufficient security against an inundation of the home market, it will flow in a regular equitable current, supplying the real wants of the country, without overwhelming it, instead of rendering the trade, as now, under the principle of prohibition, a perpetual series of alterations between a drought and a deluge. I think this project will tend to equalize the prices, and keep that equalization of prices steady. The market will, indeed, assume such a steadiness, that instead of a fluctuation between 112s. at one time, and 38s. at another, the vibrations will probably be found to be limited within the small circle of from 55s. to about 65s. The plan will provide against the mischief arising from sudden gluts in the market at one time, and sudden dearths compelling us to legislate occasionally in contradiction to our general system of legislation, at another."

C. P. Thompson's speech.

In C. P. Thompson's speech, in 1839, he states—

"On what principle is it, that after the system laid down by Mr. Canning has so signally failed, we continue to apply a different law to corn from that applied to other articles? For whose interests, then, I ask, is all this done?—for the tenant? Who can deny that fluctuation of prices must be most injurious to him? He can never tell what he ought to give for his land, what return he ought to get for his capital. To the uncertainty which already exists in all farming operations, you superadd an additional amount of uncertainty, and you call that a good law for the tenant. With respect to the landlord, instead of entering into an argument to show how, on theory, practice, or principle, the law must be injurious to him, I must be permitted to refer to the document above, respecting which there can be no dispute, which will be a good test of what the agriculturists has experienced from the law. If the law be what it has been represented by its advocates, we have a right to expect that its effect on agriculture will be beneficial; but I find, from the records before me, that since 1828, there has been no less than five king's speeches, in which reference was made to the depressed state of agriculture, and which called the earliest attention of parliament to the subject, with a view of devising relief. As to the labourer, I cannot understand how he can be otherwise than benefitted by a change of the law; the only thing which he can bring to market is his labour, and the price which he obtains for it depends upon the ratio which supply bears to the demand in the market. Whatever increases the demand for labour, raises his wages; whatever diminishes it, reduces them. If any man, more than another, has an interest in the alteration of the corn laws, with a view to avoid fluctuations, it is the labourer."—*Lord Sydenham's Life*, p. 395.

A still more important consideration is, that a repeal of all the corn laws, even if it were attended with all the consequences which the most sanguine of its advocates predict, would evidently, in a few years, bring us back to the point from which we started, with an increased population, and all our difficulties on a larger scale, unless the system on which we have been proceeding for the last fifty years is radically altered; all the worst evils at present existing—ignorance, demoralization, infant and female labour, increase of destitution growing up simultaneously with the more rapid advance of manufacturing wealth. The tem-

porary prosperity of the period from 1835 to 1836, when profits were high, food cheap from abundant harvests, and when our export trade took a new and extensive turn, terminated in the crisis of 1837,—caused by the American mania, –(alluded to in page 111, book 12, of *British Commerce.*)

The importation of leather gloves, was 1,622,795 pairs, in 1842; raw silk, about 4,000,000 lbs.; sheep and lambs' wool, 45,833,983 lbs.; and cotton wool, 532,067,984 lbs. Our exports to the West Indies, in 1842, were valued at £3,574,970; to the North American colonies, in 1842, £2,847,913; to the United States of America, in 1834, we exported goods to the amount of £6,834,989; in 1835, it was 10,588,456; in 1836, it was £12,425,605; in 1837, it fell to only £4,695,225; and in 1841, to £5,000,000. This statement, in a great degree, accounts for the panic of 1836-, 7 and 8. The Americans had been speculating to an enormous extent in bonds, (to the amount of fifty or sixty millions of British capital), and every species of gambling speculation; and, to finish the matter, in 1835 and 1836, purchased nearly double the usual supply; but long before their bills became due for the purchases of 1836, it was ascertained that the greatest part of the buyers had become insolvent, and many could not pay ten shillings in the pound, nearly thirty millions of their bonds have never paid one shilling; this occasioned the manufacturers to stop their mills a short time, and many to curtail the price of wages until they saw how their bills could be

paid. The labourers, not seeing the cause, believing it was an over-covetous desire in their employers to pocket the difference, struck for wages, which the masters could not comply with; nor would it have been prudent in the case to have done so. The flame spread not only among the cotton manufacturers, but the hardware, and almost all those connected with the American trade. By this we may see the origin of a panic, which often arises from the impatience of the labouring population, when reverses in trade and foreign commerce are the occasion. The financial panic of 1825 was very much of the same nature, merely by the over-speculation of a foreign power, and the commercial panic of 1813, was from the over-production of our manufactures being exported to South America.

Next to our home trade, the commerce of India claims our particular notice, not only from the influx of wealth produced, but the enlargement of the dominion of the empire, which, if it had been carried on, on principles of justice and equal rights, the name of Englishman would have stood for ever in the annals of fame.* The first charter of the company was granted by Queen Elizabeth, in 1606, and three ships only were fitted out. In 1616, the company raised £1,622,940, among 954 subscribers. In 1653, the East India trade was thrown open by Cromwell. In 1661, Charles II, granted a new charter, and the island of Bombay was ceded from the Portuguese to Charles, as part of the fortune of his queen. In 1665, the company commenced a trade with China, and among other orders to their factor at Bantam, he was to purchase "100 lbs. of the best tay he could gett." In 1669, the company received two canisters of tea, containing 142 lbs., which is supposed to be the first importation of the article. It appears, that the trade with India kept increasing until 1698, when sixty ships were engaged in

* Though we may claim the glory of conquest, and arbitrary dominion over 100,000,000 of inhabitants, yet the blood-stained tribute of Juggernaut, and oppression of the native chiefs by extortions of revenue, will never be erased from the page of history.

Importation of tobacco.

the trade, in which all the conveniencies of a free trade and a monopoly were combined, without any advantages to either. The native manufacturers were so injured by a glut of imported goods, that the prices obtained entirely failed to remunerate the shippers; the consequence was almost an entire failure of the project, and called into action a new company—the property of the old being reduced to £330,000. In 1711, the quantity of tea imported increased to 141,995 lbs.; in 1741, to 1,031,540 lbs.; in 1771, to 5,566,793 lbs.; in 1801, to 20,237,753 lbs.; in 1831, to 26,043,223 lbs.; in 1841, to 36,681,877 lbs.; and to which, in the last year, was exported in British and Irish manufactured goods, property to the amount of £6,623,192; but what effect the throwing open the trade to China will produce, time only will determine; but, at any rate, the impetus for preparing extra quantities of manufactured goods for exportation to these countries, appears to promise great national commerce.

The next article, although not a necessary of life, is the immense consumption and importation of *tobacco*. In 1831, there were imported 33,327,785 lbs.; and in 1841, 45,029,678 lbs. So strange an infatuation has this article had over the people, that all the opposition of prejudice, reason, or power has not been able to overcome it; and it is doubtful whether King James's opposition to tobacco had even the temporary effect of checking the practice, except within the sphere of the court. It would, most likely, have been introduced into cultivation in England, had not the king conceived an idea that it would pollute the land, and that America was the only fit country to grow it in; and since the loss of the American colonies, the object was the difficulty of collecting the revenue, if *allowed*, which was producing several millions per year. Tobacco, however, has every where had its storm of opposition to encounter, at some portion of its history, in every country. It was not exempt in England from this its peculiar lot; for when James

Punishments for smoking

ascended the throne, tobacco was called "divine" no more ;* and about the same time, the Turkish vizier, to prohibit its use, as a punishment, was thrusting pipes through the noses of smokers ; and the Shad of Persia, to accomplish the same object, was cropping their ears and snipping their noses. Our British king was writing a volume against the same unhappy class of persons. A few curious passages may be selected from this monarch's book, to illustrate the estimation in which tobacco-smoking was held by him, and the forms in which the usage then appeared. The following shows that the habit was at that time indulged in to greater excess, and less delicacy, than at present, though we are fearful its great excess of late years has had an injurious effect on the health of the younger classes of society :—

"And for the vanities committed in this filthy custom, is it not great vanity and uselessness, that at the table, a place of respect, of cleanness and modesty, men should not be ashamed to sit tossing of tobacco-pipes, and puffing of the smoke one to another, making the filthy smoke and stink thereof to exhale across the dishes, and infect the air, when very often men that abhor it are at their repast ?"

The king, in concluding his fulminations against tobacco-smoking, characterizes the habit as a custom

"Loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and, in the black stinking fume thereof, nearest resembling the horrible Stigean smoke of the pit that is bottomless."

In 1616, a Derbyshire gentleman, named Peter Cambell, made his will, bequeathing to his eldest son all his household goods towards housekeeping, on

* Spenser, the friend and patron of Sir Walter Raleigh, called tobacco, in his *Fairy Queen*, "the divine tobacco"

the condition, that if thereafter any of his brothers or sisters should find him smoking tobacco, that he or she, so finding him, should be entitled to the said goods, or the full value of them in money. The king's counterblast had, probably, the effect on this person. Tobacco was introduced into Europe from the province of Tobaca, in St. Domingo, in 1559, by a Spanish gentleman, named Hermandez de Toleda, who brought a quantity into Spain and Portugal; from thence, by means of the French ambassador at Lisbon, Jean Nicol, from whom it derives its name—Nicotia, it found its way to Paris, where it was used in the form of a powder by Catherine de Medecis. Tobacco then came under the patronage of the Cardinal Santa Croce, the Pope's nuncio, returning from his embassy at the Spanish court, who carried the plant into his own country, and thus acquired a fame little inferior to that which at another period he had won by piously bringing a portion of the *real cross* from the holy land. Both in France and the papal states, it was at once received, with general enthusiasm, in the shape of snuff; but it was some time after the use of tobacco, as snuff, that the practice of smoking commenced, though CAMDEN says, in his *Elizabeth*, that Sir Francis Drake and his companions, on their return from Virginia, in 1585, were the first, as far as he knew, who introduced the Indian plant, called tobacco (or *nicotia*) into England,—having been taught by the Indians to use it as a remedy against indigestion. "Therefore, it immediately began to grow into very general use, and to bear a high price,—a great many persons, some from luxury and others for their health, being wont to draw in the strong-smelling smoke with insatiable greediness through an earthern tube, and then puff it forth again through their nostrils, so that tobacco taverns are now as generally kept in all our towns as warehouses or beerhouses." It appears, (from a note in the *Criminal Trials*, vol. I, p. 361), that in 1600, the French ambassador, in his dispatches, represented the peers, on the trial of the Earls of Essex and Southampton, as smoking tobacco copiously while they deliberated on their verdict. But, notwithstanding the Pope's Bull of 1684, (Urban 8), excommunicating all persons found guilty of taking snuff, when in church; so, for a long time smoking was forbidden in Russia, under pain of having the nose cut off. It was likewise made a subject of public prosecution in Switzerland,—the police regulations of the canton of Berne, in 1661, placing the prohibition of smoking in the list of the *Ten Commandments* immediately under that against adultery. But notwithstanding the use of the plant, tobacco is, at this moment perhaps, the most general luxury in existence.

"Much meat doth gluttony procure,
To feed men as fat as swine;
But he's a frugal man indeed,
That on a leaf can dine!

He needs no napkin for his hands,
His finger ends to wipe,
That has a kitchen in a box,
His roast meat in a pipe!"

Tallow.

The importation of *tallow*, from Russia, is another remarkable instance of continual consumption, notwithstanding the increasing use of coal-gas and oil: being in 1843, 1,083,508 cwt. Even so late as 1763, three tons of tallow only were imported into Scotland; but in 1786, there was 2,500 tons imported direct from the Baltic.

From the West Indies, are imported *coffee*, *sugar*, *dye-woods*, and various minor articles. The importation of coffee and cocoa since the alteration of the duty, is exceedingly remarkable, being 41,385,000 lbs., in 1841; and sugar to the amount of 4,000,000 cwt. Coffee cannot be cultivated to advantage in a temperate climate;—it was early taken to the West India islands from Arabia; the cultivation is easy, and it flourishes most in new soils, on a gentle slope, and begins to bear when two years old, in soils where water will not lodge on its roots. The third year the trees are in full bearing. The aspect of a coffee plantation during the period of flowering, which does not last longer than one or two days, is very interesting. In one night, the blossoms expand so profusely as to present the appearance which has sometimes happened in England, when a casual snow storm, at the close of autumn, has loaded the trees, while still furnished with their full complement of foliage. The seeds are known to be ripe when the berries assume a dark red colour, and, if not then gathered, will drop from the trees. The planters in Arabia do not pluck the fruit, but place cloths for its

reception beneath the bushes, which they shake, and the ripened berries drop; these are spread upon mats to dry. In the West Indies, they are gathered by hand, as they become sufficiently ripe, and, most likely, in a greener state, which is the cause of the difference in their colour.

Sugar may be properly reckoned a necessary of life. It is almost in universal use throughout the world. The scattered tribes of North American India spread themselves abroad, in the months of spring, to manufacture sugar out of the juice of the maple. This country employs, throughout the year, two hundred thousand tons of shipping, to export five hundred millions of pounds of sugar from the colonies. Through the natural operation of our commercial power, this important article of comfort and health—(it is stated, that since the general introduction of sugar, there have been fewer infectious or putrid disorders),—is placed within the reach of the humblest individual in the land, and the revenue received by the state from the consumers amounts to five millions annually.

The sugar-cane must be considered as a native of China, since it has been cultivated in that empire for two thousand years before sugar was ever known in Europe, and for a long period before other eastern nations became acquainted with its use. In the thirteenth century, the celebrated Marco Polo informed the inhabitants of Europe of its growth, which had been brought as a most precious luxury, worth its weight in gold. In the fifteenth century, the sugar cane first appeared in Europe; Sicily took the lead in its cultivation; thence it passed into Spain and Madeira; and, shortly after the discovery of America, this plant was conveyed to Hayti and Brazil; from which latter country it gradually spread through the islands of the West Indies. Of later years, it has been discovered as by no means an uncommon plant, in a wild state, in South America, and used by the natives as an article of food. The art of refining was discovered by

a Venetian, at the end of the sixteenth century, who is said to have realized 100,000 crowns—a very large sum in those days. Since 1810, several new patents have improved the process and expedition, by boiling the syrup in vacuum, thereby excluding the external air, and at a less temperature, though there is no doubt a large quantity of rum is lost in the evaporation, which might be collected and retained. The vegetable colour is extracted by charcoal. In 1792, a considerable impulse was given to the manufacture of sugar in the West Indies, by the introduction of new kinds of sugar cane from Otahaite and other places, which proved far more productive than those previously cultivated. Some of the earliest experiments were made in the French island of Guadaloupe, by a planter named Pinnel; and the first trial of the new canes in any British colony, was made in the year 1793, by a gentleman of Mountserrat, to whom Pinnel had given some of his plants. So manifest was the superiority of the new canes, that "generally under the name of Bourbon canes" they were soon spread over all the British West Indies, where they quickly superseded the old ones. Since the emancipation of the negro population, it is to be hoped a larger quantity of this nutritious article will be grown, as more scientific means are used in its culture, (which is most simple); and, by the application of the plough and cattle for manual labour, and in the manufacture, the use of vacuum-boilers, which will not only increase the quantity, but colour. In the instances where the plough has been tried, the produce has been three to one, in returns of profit.

The South Sea *whale fishery* produced, in 1839, £691,000, and the cod and seal fishery, on the coast of Newfoundland, produced the same year £728,794. These are produced by British labourers, though more than half the produce is exported from thence to the West Indies, Spain, Portugal, and to the Italian states, from whence the vessels return with fruits, &c. to Britain.

In 1700, (as we have before stated) the shipping of Great Britain was only 293,703 tons, exclusive of foreign vessels.* In 1840, the British and Irish vessels were 17,635 in number, carrying 3,101,650 tons, and em-

* In 1800, the number of British vessels were 8,571, carrying 1,205,564 tons; and the foreign vessels employed by England was 5,010, carrying 704,097 tons.

ploying 170,330 men ; at the same time we employed, in addition, 10,326 foreign vessels, carrying 1,331,363 tons, and employing 79,550 men. In 1842, being a time of great complaints from want of trade, we increased our vessels from 18,525 tonnage to 3,361,211, and employing 178,696 men,—at the same time employing 9,765 foreign vessels, tonnage 1,336,892, and employing 75,694 men. The difference between the imports and exports being in favour of the latter, although employing 61 vessels less in number, and carrying 68,068 tons burthen more of merchandize, and employed 3,000 more men, which consequently shows that the vessels must have been of considerably larger size.

Besides the articles enumerated, as cottons and woollens, we export leather to the value of £432,117 ; linen, £4,358,971 ; paper, furniture, books and printing, £416,345 ; silk, £788,894 ; China, glass, and earthenware, £1,022,189 ; jewellery and plate to the amount of £214,155 ; and miscellaneous, £7,910,250, amounting altogether, in round numbers, to the sum of £52,000,000, besides £126,000,000's worth of the same articles consumed at home by our own population !—So much for the produce of our manufactures and commerce.

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